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THE LIVER
AND
ITS DISEASES,
BY
WILLIAM MORGAN.
M. D.

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THE LIVER.

THE LIVER

AND ITS DISEASES,

BOTH FUNCTIONAL AND ORGANIC.

THEIR HISTORY, ANATOMY, CHEMISTRY, PATHOLOGY,
PHYSIOLOGY, AND TREATMENT.

BY

WILLIAM MORGAN, M.D.,

Member of the Royal College of Surgeons, England; Member of the British Homœopathic Society; Physician to the Brighton Homœopathic Dispensary, Formerly Physician to the North London Homœopathic Dispensary, Accoucheur to the West End Maternity Institute, and one of the Medical Officers to the London Homœopathic Hospital, &c., &c.

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P R E F A C E.

A PORTION of the materials of which this volume is composed has appeared from time to time in the pages of the "Homœopathic World," and from the flattering communications which I have received from some of my colleagues in England, as well as in the United States of America, relative to the practical bearing of the subject on which it treats, has induced me to publish it in the form now presented to the reader.

In undertaking this task I have kept prominently in view that familiar phrase "brevity is the soul of wit," consequently I have endeavoured to concentrate into the smallest possible compass, compatible with the scope and usefulness of the work,—the history, anatomy, chemistry, pathology, physiology, and treatment, both allopathic and homœopathic, of each disease.

The sections referring to allopathy, or the so-called "orthodox doctrine of medicine," are simply introduced by way of contrast, from which it is hoped the general reader may derive food for thought, and weapons for fair arguments and well balanced comparisons.

For a knowledge of the early history and advanced pathology of many of the more obscure diseases of the liver, I am indebted to the researches of Frerichs and Rokitanski; for practical experiments to Sanders; for tropical and pyæmic abscesses to Annesley and Ward; and for valuable clinical observations to Budd and others.

This little work does not aim at being a complete or exhaustive exposition of the subject upon which it treats; it, however, embraces a large section of the most important of "liver complaints," and the author anticipates for it, with all its shortcomings, a useful career.

OLD STEINE, BRIGHTON,
April 16th, 1877.

HOMŒOPATHIC MEDICINES,

THEIR MODE OF PREPARATION ; THEIR CURATIVE SELECTION ; THE DOSE OR POTENCY, AND THE MANNER OF THEIR ADMINISTRATION, BRIEFLY EXPLAINED.

Homœopathic Medicines.

The homœopathic "Materia Medica" contains at the present time from 260 to 270 medicinal preparations ; the greater number of these have been faithfully proved on man, woman, and child, while in a state of health, in order to ascertain the pathogenetic and specific properties of each drug, others have been but partially proved, and hold a place in its pages on empirical grounds.

Homœopathic medicines are prepared and kept in the form of Tinctures, Triturations, Pilules, and Globules ; a few in ether and glycerine, such as the snake poisons.

The tinctures are chiefly derived from the vegetable and animal kingdoms ; known as expressed juice, mother tincture, or matrix tincture, the symbol of which is the Greek ϕ .

From these tinctures the various dilutions or potencies are prepared ; and the higher we ascend in the scale of dilution the further we depart from the crude substance, which accounts for the non-poisonous, and consequently non-injurious properties of homœopathically prepared medicines ; but they nevertheless retain medicinal

properties of marvellous efficacy, which are potent against the disease; and inert against the constitution, when homœopathically or specifically selected. Triturations, on the contrary, are chiefly prepared from substances derived from the mineral kingdom. Among these may be enumerated sulphur, mercury, arsenic, zinc, tin, baryta, gold, silver, iron, lime, copper, alum, tellurium, and many more. The mode of preparing the various potencies from the matrix triturations is similar to those prepared from the tinctures; for the manipulation of which the reader is referred to the pages of the Homœopathic Pharmacopœia, recently published under the auspices of the British Homœopathic Society.

Pilules and Globules.

These little pellets, which have afforded our allopathic brethren no scanty field for amusement and ridicule, are not in reality homœopathic medicines at all: they are simply elegant and ingenious little *vehicles* for the administration of the various remedies when reduced to the liquid form (tincture), and used on the same principle as Doctor Dosewell¹ selects honey, syrup, jam, or jelly for his nauseous compound of grey powder, rhubarb, senna, or Dover's powder:—*in quovis vehiculo crasso*—in some convenient vehicle: or as once facetiously translated by a candidate for the licence of the Apothecaries' Company—in some stout Hackney coach.

On the Selection of Remedies.

The fundamental principle of homœopathic practice—the law of cure—as discovered, demonstrated, an

promulgated by Hahnemann, is simply and forcibly expressed in the following maxim :—*Similia similibus curantur*, which simply means that diseases are cured most quickly, safely, and effectually, by medicines which are capable of producing symptoms *SIMILAR* to those existing in the patient, and which characterize his disease; for in accordance with the therapeutic law of similarity, medicines cure affections similar, or like unto those they produce. The immortal bard of Aron has well expressed this law in the following lines.—

“Tut, man ! one fire burns out another’s burning
One pain is lessened by another’s anguish.
Turn giddy, and be holp by backward turning ;
One desperate grief cures with another’s languish :
Take thou some new infection to the eye,
And the rank poison of the old will die.”

Homœopathy, then, proceeds upon the great incontrovertible truth, that as the phenomena of chemistry depend upon positive laws—as the movements and instincts of the brute creation are regulated in the most orderly manner—as the physiological functions of the human organism constitute an harmonious play of beautifully co-ordinate forces,—so nature has ordained a definite relation between *remedial* agents and *diseases*. In the discoveries of such relationship, extending over a field co-extensive with Nature herself, ever fresh, ever increasing in interest, consists the study of homœopathy in its application as well as its practice. The treatment of disease henceforth must rest on positive and unerring laws, it cannot possibly depend on chance, but must be regulated in a manner commensurate with the unchanging principles of nature and philosophy.

While the differences of sexes in all living beings beneficently binds them together in prolific union, the crude matters of inorganic nature are impelled by like instincts. Even in the darkness of chaos, matter was accumulated or separated accordingly, as affinity or antagonistic matter attracted or repelled its various parts. The celestial fire follows the metals, the magnet, the iron ; amber when rubbed attracts light bodies ; earth blends with earth ; salt separates from the waters of the sea and joins its like. Everything in inanimate nature hastens to associate itself with its like.

The beauteous aspect of the world, the order of the celestial bodies, the revolution of the sun, the moon, and all the stars, indicate sufficiently at one glance, that all this is not the work of chance.

Potencies.

Homœopathic medicines have been used by physicians at various dilutions :—from the mother tinctures to the two-thousandth attenuation ; for ordinary purposes, however, I would advise my readers to confine their selections from the mother tincture ϕ to the 3rdx, or 6x dilution, as being the most useful and efficacious, and is moreover in accordance with the views of the majority and more advanced sections of homœopathic practitioners in this country and America. They constitute the ordinary potencies prescribed by the writer for many years, and have proved eminently successful in his hands.

Mode of Administration.

We have observed that there are four modes of pre-

paring the medicines :—viz., Tinctures, Triturations, medicated Pilules and Globules ; there is also more than one mode of administering these remedies.

1. TINCTURES.—The dose of these preparations is as a rule, one drop administered at stated intervals.

In acute diseases, and in those severe and dangerous complaints which rapidly run their headlong course to a fatal termination, as for instance, croup, cholera, acute atrophy of the liver, &c.—it may be necessary at the commencement of the treatment, to repeat the dose at intervals of every ten, twenty, or thirty minutes, until a favourable impression is made on the symptoms, when the interval between the doses should be lengthened as the patient improves. For this purpose it were well to mix thoroughly twelve drops of the selected tincture in twelve table-spoonfuls of water, and administered accordingly.

In chronic diseases, there should be an interval between the repetition of the dose of from twelve to twenty-four hours ; and according to the strict rules of Hahnemann, to as many days or weeks. This prolonged action of one dose of a medicine has been much doubted : I have but little faith in it myself, and generally advise that the medicine should be repeated once a day or night and morning.

TRITURATIONS.—These preparations may be taken dry on the tongue, or in solution ; one grain, or as much as will stand on the point of a pen-knife, is about equal to one drop of the tincture : one pilule, or six globules.

If the solution be preferred, twelve grains should be dissolved in twelve table-spoonfuls of water, well stirred and taken according to the circumstances of the case.

PILULES AND GLOBULES.—These elegant and Liliputian medicaments may also be taken either dry on the tongue or in solution. If the former, one pilule or six globules may be considered a fair adult dose; if the latter, one pilule or six globules dissolved in a table-spoonful of water may be considered equivalent to one drop of the tincture in the same quantity of water.

Medicines as a rule, should be taken on an empty stomach, or about two hours after a meal.

The water used for mixing the medicine should be distilled, filtered, or cold-boiled.

The solution should be made in a clean tumbler, closely covered with half a sheet of note-paper; or in a bottle well corked and kept from dust and light.

Dict.

All articles of diet and drinks which contain medicinal properties should be strictly avoided whilst taking homœopathic medicines; such as coffee, green tea, and herb teas of every description; ginger, pepper, vinegar, mustard, allspice, cinnamon, cloves, and spices of all kinds; and every variety of vegetable food of an aromatic or medicinal character; as onions, garlic, radishes, celery, or parsnips; and every variety of animal food strong-scented or difficult of digestion, as old smoked meat, roof beef, bacon, fat pork, sausages, rancid butter, strong cheese, &c.

In acute diseases the diet should consist of the most light and nutritious kinds of food; such as toast-water, barley-water, rice-water, panada, arrowroot gruel, and mutton broth. When the more violent symptoms of the disease have subsided, and the patient is fairly con-

valescent, more substantial food may be allowed in moderate quantities; such as beef tea or chicken tea thickened with pearl barley, arrowroot, or sago, boiled rice, boiled chicken, or a sweetbread; toast, rice, and bread pudding, and if there exists no derangement of the stomach or bowels, a few grapes, strawberries, or peaches may be taken. In chronic diseases, almost every variety of wholesome, nutritious, and easily digested food may be allowed, providing it does not answer the description of such kinds of aliments as are above prohibited.

As an ordinary beverage pure water should be allowed in all cases, toast-water, apple-water, barley-water, or rice-water, with an occasional glass of sound Burgundy, Carlowitz, or Somlau.

LIST OF MEDICINES

PRESCRIBED IN THIS WORK; THEIR NUMBER, OFFICIAL NAMES, ABBREVIATIONS, AND THE
POTENCY USUALLY PRESCRIBED BY THE AUTHOR.

NO.	OFFICIAL NAME.	ABBREVIATION.	ENGLISH NAME.	POTENCY.
1	Aconitum Napellus ...	... ...	Acon... ...	Monkshood
2	Aloe ... ...	... ...	Aloe... ...	Aloe
3	Alumina ... ...	... ...	Alum... ...	Pure Clay
4	Argentum Nitro-cinn	... ...	Arg. Nit. ...	Nitrate of Silver (Lunar Caustic) ...
5	Arsenicum Altum ...	... ...	Ars. A. ...	White Arsenic ...
6	Baryta Carbonica ...	... ...	Bar. C. ...	Carbonate of Baryta ...
7	Belladonna ... ...	... ...	Bell. ...	Dearly Nightshade ...
8	Bryonia Alba ...	... ...	Bry. A. ...	White Bryony ...
9	Calomelia Carbonica ...	... ...	Calc. O. ...	Carbonate of Lime ...
10	Cantharides ... ...	... ...	Canth. ...	Spanish Fly ...
11	Cannomilla ... ...	... ...	Cham. ...	Wild Chamomile ...
12	Chelidonium Majus...	... ...	Chel. M. ...	Great Celandine ...
13	China officinalis ...	... ...	Chin. v. Chi. ...	Cinchona ...
14	Coffea Cruda ...	... ...	Coff. ...	Raw Coffee ...
15	Copiba ... ...	... ...	Copiba... ...	Copiba ...
16	Curari ... ...	... ...	Cur. ...	Curari ...
17	Digitalis Purpurea ...	... ...	Dig. P. ...	Purple Foxglove ...
18	Elaeum ... ...	... ...	Elat. ...	Squinting Cucumber ...
	Ferr. Am. Cit. Strych. c. Dig..	Ferr. Am. Cit. e. ...	Ammonio, Citrate of Iron, with Strycne
	Syr. c. Dig.	and Digit. lis	

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THE LIVER.

INTRODUCTION.

IN order to study and carry out the practice of medicine in an accurate and scientific manner, it is essential that we should be deeply impressed with its importance; and to be so impressed, we must believe in it, and worship it as our god. These words, or something very similar, were uttered by a continental physician* of great learning, classical and philosophic lore, whose life and writings breathe a sincere philanthropy, contain a deep sense, and constitute, according to my humble opinion, the foundation and moral status of all medical practice. It is evident, indeed, that the practitioner who has no faith in the compass that guides him, or the efficacy of his art, cannot devote himself to the study and practice of it with that zeal, perseverance, and pleasure he otherwise would have done. Moreover, it will not suffice for the physician only to be convinced of the utility and efficacy of the remedies he prescribes; it is of the greatest import to the success of such treatment, that the patient share his confidence in them as well. It is, therefore, important to all of us to form early a reasonable opinion on the degree of efficacy

* Cabanis, "Du Degré de certitude de la Médecine."

and certainty that may be attained in medicine. The practice of medicine, or the "Art of Healing," is not of recent birth, but stands coeval with the world's history. The question is, "Did it spring from the natural wants of man?" or as some ancient and modern philosophers will have it, "an evidence of the degeneration of the human species?" It belongs to history alone to solve these questions; for, it appears from the most undoubted traditions, that there does not exist, and never has existed a people, whether savage or civilized, who had not some crude and primitive knowledge of medicine. We are therefore compelled to conclude from this fact, that the art of medicine is destined to satisfy an **IRRESISTIBLE, IMPERIOUS,** and a **NATURAL** want.

The art of medicine may be said to be a science which aims at the preservation of health, the cure of disease, and the physical perfection of man. In the early ages this art of healing consisted only in a succinct description of diseases which had been observed, and the indication of the remedies employed to combat them. These two parts correspond to what at this day are named **NOSOLOGY**, and **THERAPEUTICS**: they relate to man in a state of disease only.

Subsequently, those who devoted themselves to the practice of medicine enlarged gradually the field of their observation: Nosological descriptions became more extended, and therapeutical medications more accurate and precise. They became convinced, that to understand diseases well, it was necessary to study man in a state of health. Thus **ANATOMY**, or a knowledge of the structure of the human body; and **PHYSIOLOGY**, or the knowledge of the organic functions, became important

branches of medical science. Experience also taught those ancient physicians that it is always more important, and often easier, to prevent the development of certain diseases, than to arrest their progress when once developed. Consequently physicians turned their attention towards this object. They traced the rules for the preservation of health, and the collection of these rules constitutes a new branch of the art called HYGIENE.

As a profession, medicine was first practised *primarily* by the chiefs of families, of tribes, and of nations and by generals and legislators. This epoch may be set down as the "PRIMITIVE PERIOD," or that of instinct; ending with the fall of Troy, about twelve centuries before the Christian era.

Secondly,—It merged into what is called the MYSTIC or SACRED period, which extended from the dissolution of the "Pythagorean Society" to about the year 500 A.C.

Thirdly,—The PHILOSOPHIC PERIOD, which ended at the foundation of the Alexandrian Library, 320 A.C.

Fourthly,—The ANATOMIC, or Galenic period, which extended to the first age—200th year of the Christian Era.

Fifthly,—The GREEK PERIOD, which closed at the destruction of the Alexandrian Library, A.D. 640.

Sixthly,—The ARABIC PERIOD, which closed with the fourteenth century.

Seventhly,—The ERUDITE PERIOD, comprising the fifteenth and sixteenth century.

Finally,—The REFORM PERIOD, embracing the seventeenth and eighteenth century.

As a science—so far as regard theories—medicine offers the picture of a great republic, delivered up to

many rival factions, which dominate by turns, without ever obtaining lasting power. The various theories propounded, age after age, are so many arenas for interminable discussions—a real Tower of Babel; it is, in fact, the apple of discord among physicians.

As an art, that is to say, in regard to the rules which have been established at divers epochs for the cure of diseases and the preservation of health—medicine appears to me to have followed a constantly progressive march, from its origin in the mystic ages down to the death of Galen, A.D. 200. Then it remained stationary, or even retrograded, at least in Europe, until the end of the fourteenth century of the Christian era. But from this epoch the healing art took a new and vigorous bound, and acquired from generation to generation remarkable perfection. Those who deny the progress of medicine have never seriously studied its history. With these preliminary remarks, let us now to the more special object in view,—“The Liver AND ITS DERANGEMENTS.”

CHAPTER I.

HISTORICALLY.—It is an exceedingly interesting study to trace the views which medical men at various periods, and all ages, have formed relative to the functions of individual organs of the body, and the diseases to which these organs are liable; and there is no organ wherein history attests a greater change of views, than in the case of the liver.

By the divine Plato, 430 B.C., the liver was regarded as the central organ of vegetable life; by Galen,

A.D. 200, as the focus of animal heat, and as the organ intended for the formation of blood, and for the origin of the veins. These views of the great Roman physician underwent scarcely any modification by his able followers the Arabian physicians, and remained as such until the middle of the seventeenth century. In the pathology of the ancients, particularly of Galen, the liver and the portal system served as the starting-point of manifold disturbances. There were described, not only a host of anatomical and functional lesions of the organ itself; such as inflammation, abscess, obstruction of the ducts, and the different conditions resulting from intemperance; but a large proportion of constitutional diseases were at the same time referred to the same source.

A further cause of general diseases was found in the products of the secretion of that organ—the yellow, and the black bile—which, under a humoral pathology, had a mighty importance as elementary constituents of the organism.

The yellow bile, for instance, was thought would induce acute diseases, running a rapid course and accompanied by a high degree of temperature, such as erysipelas, &c.; while the black bile was believed to give rise to chronic diseases, such as mental disorders, apoplexy, and convulsions. Throughout the pathological works which appeared from the time of Galen down to the middle of the seventeenth century, this organ was looked upon as the seat of the soul itself.

The discovery of the lacteal vessels by Aselli, in 1622; the thoracic duct by Prequet, in 1647; and the circulation of the blood by our own Harvey, in 1628, gave a severe shock to the views of Galen and his

followers; it was, however, reserved for such men as Magendie, Tiedemann, Claude Bernard, Lehmann, and C. Schmidt, to extend the boundaries of our knowledge, and reproduce in a more exact form, the *natural functions* of this remarkable gland, reference to which will be made further on.

ANATOMICALLY.—The liver may be described as a secreting and excreting gland, of prodigious size, occupying a considerable space in the upper part of the abdominal cavity; it is irregular in form, measuring through its longest diameter about twelve inches; in weight, from four to five pounds, and having on its under surface a pear-shaped reservoir for the reception of the bile—the gall-bladder. It is bounded above by the vault of the diaphragm; anteriorly and laterally by the arch of the ribs; posteriorly by the spinal column; and below by the stomach and intestines.

IN STRUCTURE, the liver is divided externally into five lobes, viz., the right, left, quadrangular, lobe of Spigelius, and the caudated lobe. The outlines of these lobes are marked by an equal number of fissures, viz., the longitudinal, the venous duct, the transverse, the gall-bladder, and the fissure for the vena cava. It is held in position by an equal number of bands, or ligaments, four of which are reflections of the serous membrane of the intestines—"the peritoneum," viz., the longitudinal, two lateral, the coronary, and the fifth, or round ligament: formed upon the obliteration of the umbilical veins of the foetus, whose place it occupies. The blood-vessels and lymphatics are likewise five in number—namely, the hepatic artery, portal veins, hepatic veins, hepatic ducts, and lymphatics.

The nerves entering the liver are derived from the systems both of animal and of organic life; the former spring from the right phrenic and pneumogastric nerves, the latter from the hepatic plexus of the great sympathetic track.

THE MINUTE STRUCTURE of this wonderful laboratory is composed of a vast number of bodies, called lobules, which do not exceed in size a millet seed, or a "homœopathic globule;" nevertheless each lobule contains all the elementary parts of which the entire organ is constructed—namely, branches of the hepatic artery and veins, branches of the portal veins, branches of the hepatic ducts and secreting cells.

The portal veins, hepatic artery, and hepatic duct are enclosed in a sheath of fibro-cellular tissue, called "Glisson's capsule;" they enter the liver together at its transverse fissure, and ramify throughout the whole substance of the organ.

PHYSIOLoGICALLY.—The portal vein distributes its branches through portal canals, which are channelled throughout every portion of the organ, however minute; it conveys the returning blood from the chylo-pöietic viscera; it likewise collects the venous blood from the extreme ramifications of the hepatic artery in the substance of the liver itself. It gives off branches in the canals, called vaginal, and form venous vaginal plexuses; these give off *inter-lobular* branches, and the latter enter the lobules and form *lobular venous plexuses*, from the blood circulating in which the bile is secreted.

The bile so secreted in these *lobular plexuses* is now received by a network of minute ducts, the *lobular biliary plexuses*, and conveyed from the lobule into the

inter-lobular ducts; from thence it is poured into the biliary *vaginal plexuses* of the portal canal; thence into the excreting ducts, by which it is carried to the gall-bladder, and from thence into the duodenum, or the first stage of the small intestines; where it comes in contact with the pancreatic juice, and the chyme from the stomach, which compound converts the latter into chyle.

The hepatic artery distributes branches through every portal canal, and gives off what is termed *vaginal* branches, which form a *vaginal hepatic plexus*, from which the *inter-lobular* branches arise; and these latter terminate ultimately in the *lobular venous plexuses* of the portal vein. The artery ramifies abundantly in the coats of the *hepatic ducts*, enabling them to provide their mucous secretions, and supplies the nutrient vessels of the whole organ as well.

The *hepatic veins* commence in the centre of each lobule by minute radicles, which collect the impure blood from the *lobular venous plexus*, and convey it into the *intra-lobular* veins; these open into the *sub-lobular* veins, and the *sub-lobular* veins unite to form the large *hepatic trunks* by which the impure blood of the liver is conveyed into the *vena cava* as it passes through the organ. Such is a brief outline of the structure and minute anatomy of the liver, as recorded by that eminent anatomist and physiologist, the late Mr. Kiernan.

The knowledge we at present possess of the physiological functions of the liver, as drawn from the foregoing anatomical arrangement, coupled with the brilliant experiments of Bernard, Sharpey, Harley, and others, enables us to arrive at the following conclusions, viz.,—

1. That the bile is secreted wholly from venous

blood, such blood being collected from the *chylo-pöietic* viscera.

2. That the hepatic artery carries pure (oxygenated) blood into the liver to supply nourishment to its various structures.

3. That the hepatic ducts collect the bile and carry it into larger canals, and from thence into the main reservoir—the gall-bladder ; from thence into the cystic duct, from this into the common duct, and from thence into the intestines, where it enters into the process of chylification.

4. That the liver participates directly in the generation of the elementary principles of the blood, and that it moreover assists in purifying the blood by excreting *carbon* and *hydrogen*, which being subsequently re-absorbed, combine with *oxygen*, and thus assist to keep up animal heat.

5. That the liver is a large manufacturer of sugar ; which, according to C. Bernard, is burnt off in the lungs, and goes to sustain animal heat ; but according to Chauveau and Harley, plays an important part in the process of nutrition. This appears to be a far more feasible idea than the former, as it is a well-known fact, that while bees have the power of transforming sugar into wax, man and other animals change it into adipose tissue. Negroes are said to become fat and lazy during the sugar harvest, from sucking the fresh cane. Babies fatten on sugar quicker than anything else ; and for a like object I have known molasses and coarse sugar given to pigs.

Lastly. The liver, as we have already observed, secretes bile, which, when blended with the juice from the pan-

creas, converts the *chyme* into *chyle*. It also performs another important office, namely, it acts as an aperient, "Nature's own black draught;" for whenever there is a scanty secretion, or excretion of bile, constipation invariably follows; as clearly indicated in torpor of the liver, biliary congestion, and jaundice. Restore the natural functions of the liver, and you obtain a healthy and regular supply of bile; a train of morbid symptoms will disappear; and natural evacuations will invariably follow.

RELATIVE WEIGHT AND SIZE OF THE LIVER IN HEALTH AND DISEASE; AND ITS DIAGNOSTIC VALUE IN ITS NORMAL AND ABNORMAL CONDITIONS.

IN order to be able to form a correct diagnosis of diseases of the liver, it is essential that we should be able—in a forensic, pathological, and clinical point of view,—to draw a line between the NORMAL and ABNORMAL conditions of that organ; it should at the same time, however, be observed, that the absolute weight of the liver usually increases and decreases in proportion to the weight of the body: so that the term *absolute* can only be employed in a comparative sense.

The relative weight of the liver in proportion to that of the body, has occupied the attention of many eminent authorities.

Bartholin, for instance, gives it as 1 to 36; Haller as 1 to 25; and the average weight of the gland, according to the last-named authority, was calculated at 45 oz., or 3·7 pounds; by Cruveilheir at 3 pounds; by Huschke

at 4 to 6 pounds ; and by Frerichs at 4·6 pounds avoir-dupois.

The statistics from which these calculations were gleaned, were made upon individuals who had died suddenly—from accidents, without the loss of any blood ; and whose livers, on careful examination, presented a perfectly healthy appearance.

AGE.—Frerichs states “that it is during the first stages of infantile development, that the liver is largest, in proportion to the size of the body.” Portal and Mekel have calculated that the liver in newly-born children ought to be one-fourth heavier than in children from eight to ten months old. As age advances the organ becomes smaller, and much in advance of that of the body. In old age, therefore, the liver presents a marked contrast to the muscular tissue of the heart; as there is as a rule, *atrophy* of the former, and *hypertrophy* of the latter.

SEX.—With regard to sex, Francis Glisson in 1750 maintained that the liver is heavier in men than in women ; Dumas maintained the very reverse. Frerichs however, has been unable to detect any marked differences dependent upon sex, beyond the fact that in “scrofulous women” he found it larger, and attributes this to the abundant deposit of fatty matter.

DIGESTION OF FOOD.—The process of digestion exercises a marked influence over the size of the liver, particularly during its second stage (chylification) ; this is partly owing to the state of congestion which then takes place ; and partly to the abundant deposit of granular and amorphous materials in the interior of the hepatic cells. Still more striking is the influence of a diet rich in fat, and too bulky, with at the same time

12 INFLUENCE OF AGE, SEX, AND FOOD ON LIVER.

an impaired power of digestion. In such cases the deposit of fat, in the substance of the gland, induces an undue proportion in its size. Bidder and Schmidt found the relative weight in such cases to be as 1 to 16; and another observer, Lereboullet, ascertained that in geese the relative weight of the liver varied from 1 in 26 to 1 in 18, after feeding for two weeks upon maize; and that after four weeks it rose to 1 in 12·8. Such statistics are exceedingly interesting, and of great value to the physician, in a clinical and hygienic point of view, as they point out to him the absolute necessity of selecting a diet devoid of those aliments which go to form adipose tissue.

NORMAL AND ABNORMAL CONDITIONS OF THE LIVER.—
In the diagnosis of diseases of this gland, an accurate knowledge of the size and form of the organ is one of the first points for consideration. The size and normal position of the liver have already been referred to; and its boundaries, after some experience, can be defined by *percussion*,—*palpation*,—*mensuration*,—sometimes by *auscultation*—and careful *manipulation*. Its abnormalities present features of considerable interest, and such as are found in no other organ of the body; some of these malformations are congenital, which on a cursory examination at the bedside, may easily lead to a wrong diagnosis. Thus, some livers of this type are found to be quadrangular; others have a prolonged left lobe, bearing a strong similarity to a leg of mutton laid across the hypochondriac region; and others, where adhesions take place between the extremity of the left lobe and spleen. To these congenital deformities may be added a more numerous class of what may be called *acquired*

malformations ; these arise partly from deformities of the thorax, from disease of the hepatic tissue, from tumours, cancer, abscesses, hydatids, and from tight lacing. The liver may also be entirely dislodged or dislocated from its natural position. The most frequent cause of this is undoubtedly *tight lacing*, which forces the gland downwards even as far as the pubis. Lateral dislocations likewise take place from pulmonary emphysema, from effusions into the right or left pleural cavity, from pericardial effusions, and from eccentric hypertrophies of the heart.

CAUSES OF DISEASES OF THE LIVER.

IN order to avoid unnecessary repetition, whilst considering the divers forms of hepatic derangements, we shall here glance at the most prominent CAUSES, which the experience of many observers have found to occasion them. These causes may produce various effects, or allied effects, according to the TEMPERAMENT, CONSTITUTION, and mode of living of the individuals prone to such disorders.

AGE.—As regards age, it has been found that diseases of the liver seldom occur until after puberty, unless it be in the children of Europeans residing in the East Indies, or other inter-tropical climate.

TEMPERAMENT.—The sanguine, sanguino-melancholic, the irritable, and those of a scrofulous diathesis, are more frequently attacked with liver diseases than others. In the young, and the middle-aged, the diseases are acute and inflammatory ; at more advanced periods, they are most frequently congestive and structural.

CLIMATE.—The climacteric causes may be set down as—high ranges of atmospheric temperature, and the circumstances connected with them, such as a sudden change from a dry to a humid air ; exposure to the sun's rays ; malaria, &c.

DIET AND REGIMEN.—Next to climate and temperature, may be set down an irregular mode of living ; such as partaking largely and frequently of animal, rich, highly seasoned, incongruous dishes, sauces, spices, low-class wines and spirituous liquors, unwholesome food, and impure water. Mercurial preparations are likewise known to exert an undoubted influence in producing disease of the liver, either of an inflammatory, or of an obstructive character ; to these may be added the absorption of morbid or faecal matters from the alimentary canal, indolent and sedentary occupations, mental emotions, dysentery and chronic diarrhoea. The suppression of habitual discharges, such as haemorrhoids, the catamenia, leucorrhœa, the disappearance or drying up of eruptions and ulcers, the closing of fistulas, sinuses, and the operation for piles, &c., have been no uncommon causes of disease of the liver.

TYPE.—Finally, of the several races of mankind, the white or fair races are the most prone to hepatic disorders. The immunity of the dark races, particularly the negro, from diseases of the liver, is very remarkable, even in climates where these diseases may be considered as endemic.

CHAPTER II.

FUNCTIONAL DISORDERS OF THE LIVER.

UNDER the head of functional disorders may be embodied all those conditions of the biliary secretions which differ more or less from the healthy state, and terminate, sooner or later, in further and more serious mischief.

The chief derangements which fall under this head are—

1. Diminished secretion of bile ;
2. Increased secretion of bile ; and
3. Secretion of morbid or altered bile.

1. DIMINISHED SECRETION OF BILE, better known as "torpor of the liver," and more familiarly so as a "bilious attack," may be briefly defined as—an irregular or costive condition of the bowels, the stools being insufficiently charged with bile ; a sallow or muddy appearance of the countenance ; dejection of spirits ; flatulency ; and various other symptoms of a dyspeptic character.

CAUSES.—The chief causes which lead to an impaired action of the liver are—sedentary occupations, indolent indulgences, neglect of exercise, exposure to cold, humidity, or malaria, after fatigue or excessive perspirations ; habitual over-excitement of the stomach and liver, from eating and drinking rich and heating articles ; a neg-

lected condition of the bowels, or accumulations of secretions, and faecal matters, in the intestinal canal.

The symptoms (says Copland) of impaired action of the liver are not always very manifest ; and it is often very difficult, or even impossible to determine, even when these symptoms are well marked, whether or no they depend merely upon diminished energy, or upon change of the structure of the organ and of its appendages, unless we obtain a correct history of the patient's habits, and the nature of his former ailments. For instance, when such a patient complains—after having enjoyed good health, or without having experienced, on former occasions, either acute or chronic affections of the liver or stomach—of dyspeptic symptoms, with a costive or irregular state of the bowels, the stools pale or clayey, the urine dark or high-coloured; want of appetite, lowness of spirits, a foul and coated tongue, a bitter or nasty taste of the mouth, a dark, sallow, or dingy appearance of the countenance, with fulness or tenderness in the hepatic region, it may be fairly inferred that the functions of the liver are only *simply deranged*. Should, however, the above train of symptoms occur in a patient who has for years lived intemperately, both in eating and drinking, or who has resided for years in a hot climate, or who has suffered from repeated attacks of the same disorder; the inferences are, that such impaired functions may be associated with *congestion, inflammation*, or some deep-seated *organic lesion* of the substance of the liver.

TREATMENT.—*Allopathically*.—Torpor of the liver is usually treated by the various mercurial preparations, saline and deobstruent aperients and taraxicum ; failing

this, by potass., soda, aloes, and saline or bitter stomachic aperients; failing this, by emetics, blisters, nitro-muriatic acid, plasters, iodide of potassium, and insipidated ox-gall.

Homœopathically.—Simple torpor of the liver will yield kindly enough to such remedies as the *Podo-phyllo Peltatum*, *Leptandra Virginica*, and an occasional or alternating dose of *Nux Vomica*, to correct stomachic derangements. The two former may be taken in four, five, or six drop doses of the tinctures, in the matrix form, two or three times a day, the latter in the first or second decimal dilution.

In the more obstinate and aggravated form of torpor of the liver, when there exists a sick bilious headache, which is further characterized by a violent aching pain in the whole head, with a feeling as if the brain were sore, accompanied by a copious flow of water from the mouth, nausea, vomiting of green and yellow bile, and a muddy or sallow hue of the countenance, *Merc. Sol.* in the first or second trituration will not fail to relieve the sufferer; and in the still more obstinate form, or when it assumes a chronic character, indicated by a recurrence of the attacks from time to time; a sallow ictero-oidal tint of the face, a coated tongue, a clammy mouth, fulness and tension in the right hepatic region, distension and hardness of the abdomen; constipation, which at times alternates with green, dark brown, reddish, or slate-coloured loose stools, at times tinged with blood and slimy mucus; I have found great benefit, and often a radical cure, to follow a repetition of *Merc. Sol.*, followed by *Leptandra*, *Taraxacum*, and *Nitro-muriatic Acid*; an occasional Turkish bath, with a prolonged shampooing.

over the region of the liver ; a cold compress, worn both night and day ; horse, running, and gymnastic exercise ; early rising, followed by a cold sitz bath, and a resort to some of the deobstruent and aperient mineral waters, such as the SEIDCHUTZ and PULNA, in Germany ; CHELTENHAM, in Gloucestershire ; LEAMINGTON, in Warwickshire ; and the celebrated SULPHO-SALINE of Llandrindod, in Radnorshire.

2. INCREASED OR EXCESSIVE SECRETION OF BILE.—This is the very opposite of the foregoing morbid condition, and may be defined as copious fluid faecal evacuations, highly charged with bile, which is sometimes green, at other times slate-coloured ; and often preceded by griping, tortina and nausea, and sometimes by vomiting, and an accelerated pulse.

An inordinate secretion of bile is more frequently inferred from circumstances, than proved by unequivocal evidence : for accumulations of bile may form in the gall bladder and hepatic ducts, and when suddenly discharged into the alimentary canal, give rise to the same group of symptoms which characterize an increased secretion ; when in fact only an increased flow of previously obstructed or accumulated bile has taken place. In this country, particularly during the summer and autumnal months, this form of biliary derangement is of frequent occurrence, and known as bilious diarrhoea—bilious or English cholera—and merely form minor grades, as it were, of the same pathological conditions often met with in warm and Eastern climates. The further symptomological phases of this form of biliary derangement is recognized by the evacuations being at first feculent, and commonly of a green, or greenish

yellow, or even a bright yellow colour ; they afterwards become more fluid and watery, vary in colour, and mixed with thin feculent matter. If the diarrhoea continues, it frequently contains yellowish or greenish yellow mucus, either in large thick masses, or in thin, glairy, or gelatinous pieces, which fall to the bottom of the pan, and admit of being drawn into long filaments ; or it consists chiefly of a serous fluid, coloured by the bile, and presenting either a glairy mucus or albuminous flocculi. This form of bilious diarrhoea may terminate in an inflammatory condition of some part of the alimentary canal, or in dysentery.

TREATMENT.—*Allopathically*.—If congestion and fulness of the liver exist, this form of hepatic derangement is first treated by general bleeding, cupping, or leeches applied to the region of that organ. Next to bleeding comes in rotation the administration of demulcents, lubricating infusions, or diluents, combined with nitre, sub-carbonate of soda, antimony, and camphor ; followed by blue pill, grey powder, castor oil, and other purgatives ; and if the diarrhoea becomes obstinate, by opium and various astringents (*Copland*).

Homœopathically.—Increased secretion of bile, with its attendant symptoms, is successfully treated by such well-proved remedies as *Aconite*, *Aloes*, *Arg. Nitratis*, *Chelid. Maj.*, *Cham.*, *Merc. Sol.*, *Ipec.*, *Nux Vom.*, and *Rheum*. In the selection of these medicines, due regard should be paid to their pathogeneses ; and a correct estimate formed of their similitude to the group of symptoms presented to our view.

Aconite undoubtedly stands foremost as a curative agent in bilious diarrhoea, when connected with conges-

tion of the liver, or engorgement of the portal capillaries in the bowels, resulting in the accumulation of bile as a foreign agent, which manifests an irritating influence upon the intestinal mucous membrane; followed by frequent and painful discharges of mucus and faecal matter, mixed with green bile.

Aloes is well indicated when the stools have a peculiar putrid smell, the whole body feeling hot during an evacuation, with an uncomfortable feeling in the region of the liver.

Arg. Nit.—When there exists a sense of fulness and stitches in the liver, coupled with organic diseases of the organ. Green, bilious, mucous diarrhoea, preceded by violent colicky pains.

Chelidonium Majus.—The group of symptoms to which this remedy may be considered as homœopathic, "and which may be described as a diarrhoea of a gastric bilious character," consists of pain with a feeling of fulness in the region of the liver, stomach, and spleen, with hardness and pain on pressure. The motions are slimy, greyish yellow, papescent, or watery; the complexion is sallow, the tongue coated, and no appetite; the urine is turbid, and of a deep yellow colour, with general chilliness and lassitude.

Chamomilla.—In the bilious diarrhoea of children, when the discharges have a sour smell, are watery, slimy, green, or yellow, and preceded by pinching or cutting pains in the bowels, with sub-acute congestion of the liver, indicated by pain on pressure, with a fretful, peevish, and feverish condition of the little patient, *Chamomilla* will sometimes act as a curative agent in the second or third dilution. Although *Chamomilla* is very commonly administered for this affection, and forms

the leading remedy in most "Domestic treatises," yet I infinitely prefer, and find I derive more satisfactory results from *Aconite* in the second or third dilution.

Merc. Sol. Hah.—In bilious diarrhoea, attended by bilious colic and flatulent colic, *Mercury* will be found one of our leading and most effectual remedies. The pathogenetic effects of *Mercury* on the body in health are remarkably striking, and produce as correct a picture of the disease under consideration as anyone can well imagine. This metallic compound not only increases the frequency of the alvine discharges, but it alters their colour and smell as well: thus we have as symptoms,— "bloody mucous discharges, green excoriating discharges, bright yellow, reddish or dark brown discharges, which may be watery or papescent, with slight or very offensive smell; in addition, we meet with distension and hardness of the abdomen; dull aching pains in the liver; cutting pinching pains in the bowels; the hands become cold, the pulse feeble and accelerated; with tenesmus and a frequent desire to go to stool."

Ipecacuanha is a very useful remedy in certain forms of bilious diarrhoea, and may be given alone or in alternation with the foregoing medicines, particularly when the following symptoms are present, which indicate in a marked degree the selection of this drug:—nausea, qualmishness in the stomach and bowels; a flow of water from the mouth, loss of appetite, and a white-coated tongue; bloody, liquid, green, foul-smelling and fermented evacuations, with pinching, cutting, neuralgic pains in the abdomen. I generally vary the potency from the third to the sixth.

Nux Vomica is another auxiliary remedy of great

value, and well indicated when there exists, in addition to a bilious diarrhoea, considerable gastric derangement, such as pain, tension, crampy pains, frequent eructation and flatulence. The most useful form in which I have found this remedy to act is the first and second decimal dilution, one or two drops in a tablespoonful of water, and repeated at short intervals till relieved.

Rheum, in the third dilution, has done good service in a few cases of bilious diarrhoea of children, when the stools were papescent, with tenesmus, prostration, distension of the bowels, and scanty, smarting urine.

3. SECRETION OF MORBID OR ALTERED BILE.—There is every reason to suppose that the bile, when first secreted, is not, as a rule, possessed of any vitiated properties, but that it acquires such properties after having passed into the *bile ducts* and *gall bladder*, and that during its accumulation and retardation in those cavities, such properties are created, either by the reaction of its different elements on each other, or by the removal by absorption of its more watery constituents. That, however, the bilious secretion is at other times wonderfully altered in character and appearance, is fully borne out by post-mortem appearances, and its close connection with structural lesions of the liver, and malignant or pestilential maladies. In the former the bile is found to be pale, watery, and albuminous; in the latter, dark green, greenish brown, or tar-like in consistency and colour, with far more acridity than is ever found in its normal condition; so much so, indeed, as to produce marked irritation of the various tissues it comes in contact with.

It is, however, most probable (at all events in the

majority of cases) that the biliary secretions become vitiated, either in the *hepatic ducts* or *gall bladder*, and that the acrid properties it there acquires act as an irritant, and promote its own discharge into the duodenum, and from thence along the whole course of the alimentary canal, setting up at times an obstinate and aggravated form of bilious or choleraic diarrhoea.

In the treatment of "a vitiated secretion of bile," much will depend upon the various phenomena attending it.

Allopathically.—It is treated by diluents, demulcents, warm baths, ipecacuanha, alkalines, anodynes, and aperients.

Homeopathically.—Looking as I do upon the vitiated bile thrown out from the gall-bladder into the alimentary canal as a poison, or foreign body, and which cannot be antidoted by any homœopathically selected drug, I treat this vicarious secretion as a poison, and so commence my treatment by ejecting the offending matter from the alimentary canal, by the administration of a mild oleaginous laxative, such as castor oil; this I follow up by demulcent beverages, such as barley-water, gum-water, or linseed tea; and the administration of *Mercurius Solubilis*, *Ipecacuanha*, or *Arsenicum*, if considerable prostration and gastric derangement exist. The majority of such cases which have come under my notice have yielded kindly enough to this mode of treatment, care being taken that the diet should for the first few days be bland, easy of digestion, and nourishing in its properties.

CHAPTER III.

NEURALGIA OR "TIC-DOULOUREUX" OF THE LIVER.

HYPERRÆSTHESIA, or exalted sensibility and irritability of nerve fibre, is met with in every section and organ of the body.

The chief forms of "visceral neuralgia" which present themselves to our notice in practice, are—Gastrodynia, or Gastralgie, and its various complications ; Colic and ilius, more especially lead colic ; Splenalgia, or neuralgia of the spleen ; Nephralgia of the kidneys ; Hysteralgia of the womb ; Mastodynna of the breast ; and the one we are now more particularly interested in, viz., Hepatalgia—liver pains, or neuralgia ; in fact, a form of "tic douloureux ;" for I see no just reason—"taking the history and pathology of the disorder into consideration"—why such an expression should not be applied to neuralgic affections invading other parts of the body, in addition to the face ; provided, of course, the form of neuralgia be of that particular type which is characteristic of true "tic douloureux."

HISTORICALLY.—Severe pains of the liver were first noticed by Avicenna of Bockhara, A.D. 980 ; afterwards by Rolfsink and Bartholin ; and more recently, by Grossman, Andral, and Stokes of Dublin.

ANATOMICALLY.—It has already been observed that the nerves, which convey *normal* and *abnormal* sensations to the liver, are derived from the systems, both of

animal, and of organic life ; one from the brain, the other from the spinal cord, or ganglionic system.

PHYSIOLOGICALLY speaking, the activity of the centripetal nerve is manifested by the aid of the sensorium, as a conscious sensation ; and by the intervention of the spinal cord, or ganglionic system, as, reflex action ; this, when excessive, is called "hyperæsthesia ;" and when below the average, "anæsthesia."

The character which these neuralgic affections have in common, is exalted irritability, and increased irritation of the sensitive or centripetal nerves. The expression of such irritation is either mental, one of consciousness, a sensation,—or motor ; a reflex movement—or both may occur at the same time.

The sensation differs according to the peculiar activity of the nerve of sensation ; the same difference presents itself in the neuroses of sensibility. Whether a cutaneous nerve, or a nerve of sensation supplying a muscle or an organ of sense, be affected, each retains the peculiar sphere of sensibility in disease with which it is endowed in health.

CLINICALLY, it is of the first importance to be able to diagnose as to whether the seat of disease be *central* or *peripheral* ; and in making such distinctions it is further necessary that the term *peripheral* be correctly interpreted, and not, as is too often the case, confined to the ultimate ramifications of the nerves. A nerve can only be considered as *CENTRAL* when it is imbedded within the substance of the brain, the spinal cord, or the ganglia ; where its fibres are surrounded by ganglionic corpuscles, and submerged in them ; the term *PERIPHERAL* should only be applied to a nerve, from the

point where it quits, "as it were," the central organ, to its extreme distribution ; and what is usually called the root of the nerve, or, more correctly, its point of insertion, is but a portion of the peripheral distribution. By taking this view of the subject, the doctrine of *hyperesthesia* and *anaesthesia* obtains a more extensive significance ; as, the mere casual and superficial examination of the cutaneous nerves cannot, as it has hitherto done, suffice to a correct diagnosis, and a successful treatment of the many obscure forms of neuralgic diseases. It therefore becomes the more imperative to examine carefully the various fibres traversing the osseous canals, or passing over the brain and spinal cord, as distinct characters indicate, to the close observer, the seat of disease in different divisions of the peripheral tract. It is likewise necessary to base the doctrine of the neuroses of sensibility upon the physiological laws governing the nerves of sensation. These are :—

First,—*The law of isolated conduction.* That nerve-fibre only presents exalted or depressing action which is affected by the irritating or depressing cause ; and the adjoining fibre, though ever so closely approximated, is not implicated.

Secondly,—*The law of sympathy, or irradiation of sensations.* Here the irritation is propagated from the fibre originally excited to other centripetal nerves.

Thirdly,—*The law of eccentric phenomena.* Every sensation, as it becomes perceptible to consciousness, is referred to the periphery of the sensitive fibre, the entire tract of which, from its commencement to its terminal point, is susceptible of the impression. Sensation varies according to the peculiar sphere of the affected nerve.

Hyperæsthesia of the cutaneous nerves, for instance, is manifested by pain in its various modifications ; that of the nerves of special sense by phantasms. The sphere taken by the brain, as the grand centre of the nervous system, in sensations, is not only *receptive*, but *reactive* as well. For if the imagination dwells upon the sensation, the latter becomes more intense, and more defined ; and the influence or power of imagination may create varied sensations, as is often proved by the feeling of *nausea*, *prurigo*, and that morbid condition termed "*hypochondriasis*." Another manifestation of exalted irritability of the centripetal nerve takes place by reflect action upon the motor apparatus, in which sensation may be absent, or it may continue. In the former case, the absence of accompanying sensation increases the difficulty of forming a correct judgment ; but we may satisfy ourselves of the real character of the affection, by observing that the gentlest irritation of centripetal nerves, which in ordinary conditions would produce no effect, at once rouses reaction amounting to violent spasmodic action ; this is well illustrated in cases of poisoning by strychnine, in tetanus, and in hydrophobia. The combination of sensation and reflex action is often exhibited in neuralgia of the cerebro-spinal nerves, and more particularly in the sympathetic. In ciliary neuralgia, for instance, or photophobia, the eyelids are closed by reflex action, communicated by the sensitive fibres of the trigeminus to the motor fibres of the facial nerve. In prosopalgia, with neuralgia of the tongue, reflex action is communicated to the hypoglossus, and in consequence of this, the tongue becomes tremulous, painful, and thrown out.

That reflex action is a frequent source of some of the most aggravated forms of neuralgia, there cannot be a doubt ; one of the most obstinate and terrible forms of "tic-douloureux" of the facial nerves which has ever come under my notice, and which was sent me some ten years ago by Dr. Shaw, of Battersea, was clearly traced to organic disease of the kidneys and bladder, in a male 60 years old. Other cases of a similar kind have come under my notice, arising from disease of the uterus, rectum, and spleen.

Passing from the physiological to the nosological features of hyperæsthesia, we find the following rules applicable to the whole class.

1. Periodicity—the alternation of paroxysms and intermissions.
2. Uniformity and persistence of the symptoms, however long the duration of the disease.
3. Absence of danger to life.
4. Freedom of early life from the disease, except in rare cases.

AGE.—As regards age, the middle period of life presents the greatest predisposition to neuralgia ; old age very little, and childhood still less.

SEX.—As regards sex, each has a separate proclivity to certain forms of hyperæsthesia ; in the male, it assumes the form of hypochondriasis ; in the female, hemicrania, splenalgia, intercostal neuralgia, hysteralgia, mastodynia neuralgia, and hepatalgia.

SYMPTOMATOLOGY.—Neuralgia, or tic-douloureux of the liver, presents itself in the form of acute pain in the region of that organ, more or less constant, but subject to occasional and violent exacerbations, which at times

assume an intermittent form. These exacerbations, or return of the pains, are frequently traced to inordinate mental emotions, derangement of the stomach or bowels, fatigue, irregularity of the catamenia, painful or otherwise. The character of these pains, their severity, the suddenness of their succession and rapidity of their disappearance, their intermissions, and the general good state of health during the intervals of such attacks, all lead to the belief that they are the result of some morbid sensibility, manifested in the nervous filaments, or plexuses of the liver, supplied by the great sympathetic, or the pneumogastric nerve.

DIAGNOSTICALLY.—It is of the first importance that we should be able clearly to define the symptoms of neuralgia, in contradistinction to those of inflammation of the liver ; an error, however, which many a physician of experience has committed, as recorded in the literature of the subject. Dr. W. Stokes, of Dublin, in his treatise, mentions the case of a lady, of luxurious habits and nervous temperament, who was attacked, while in India, with pain in the region of the liver, which was attributed to inflammation ; for which she was largely bled and mercurialized, with no relief from the pain. On her passage to England she was again bled several times, and twice mercurialized. After her arrival, she was again bled, leeched, blistered, and mercurialized. These bloodthirsty means afforded temporary relief, but the complaint very shortly afterwards returned with increased severity ; her constitution now became shattered ; hysterical paroxysms were frequent and violent, and the stomach irritable. Finding there was no fever, the right hypochondrium supple, the lower part of the chest

sounding clear, the tongue clean, and the complexion normal ; a repetition of the same reckless treatment was omitted, and a generous diet, change of air, and full doses of *Iron* were prescribed, which in a few weeks perfectly restored her to health. Another lady was treated for inflammation. A physician was consulted who could detect no evidence of structural disease beyond the pain ; she also was now treated by the carbonate of iron, with complete success. Copland records an interesting case of a similar kind, which occurred in his own practice. It was that of a lady who had resided in India, and had experienced hepatic disease, for which she also had been bled, leeched, blistered, and mercurialized. On her return to this country, she consulted an eminent accoucheur, on account of a leucorrhœa and some uterine disorder. She was hysterical, and much weakened ; and in this condition suffered from a severe attack of pain in the liver, which was mistaken for inflammation, and treated *secundem artem*—with marked aggravation of the pain. Copland was now consulted, who viewed the case as purely neuralgic, and a treatment in accordance with such a view soon restored her to health.

Five cases of "tic-douloureux" of the liver have come under my notice since 1857 ; four were females, and one a male ; all had resided in India for many years ; all were supposed to have suffered from inflammation of the liver ; for which three were bled, blistered, and mercurialized, and sent home to England as shattered wrecks ; the remaining two were treated by mild mercurials. Now, whether all these did really suffer from *hepatitis* I am not prepared to say ; but they all showed unmistakable symptoms of *hepatalgia* when

they consulted me ; three were radically cured, and two wonderfully relieved. In the treatment of hepatalgia we must be guided in the selection of our remedies by the whole circumstances of the case, and search to its very foundations its exact cause ; without which a random shot will avail but little. The causes of hyperæsthesia are numerous ; some are prominent, others very obscure. We have, however, been able to trace it to atmospheric changes, and to soil. It is nurtured, and carried on the wings of the wind, it nestles in the storm, plays with the thunder and lightning, continued heat, or continued cold ; all these are known to be its exciting causes. Acute forms of neuralgia, with a clear and definite type, have been repeatedly observed to assume an epidemic form. If we turn to the vegetable and mineral kingdom, we find that certain substances have a specific effect in producing exalted sensibility of nerve fibre : lead for instance causes neuralgia ; spurred rye and veratrine, formication ; morphia, pruritus ; and the inhalation of protoxide of nitrogen, optical hyperæsthesia. An abnormal condition of the blood also plays an important part in the causation field of neuralgia ; for we find that plethora as well as anaemia are followed by vertigo, optical and acoustic hyperæsthesia ; and it seems here, as if pain were the prayer of the nerve for healthy blood :—the plaintive voice of nature appealing in supplicating tones to the physician for help. If we penetrate into the domain of pathology, there also do we find divers causes for neuralgic affections ; such as—obstruction, or cessation of habitual discharges, especially of haemorrhoids, and the catamenia ; the suppression of herpes, and im-

petiginous affections ; scrofula, the secondary and tertiary forms of syphilis ; swellings of osseous and cartilaginous tissues, through which nerves of sensation take their course. And, what are those stabbing, darting, piercing pains which attend schirrus of the breast, and which form so prominent a symptom of that fell disease, but an exalted sensibility of nerve fibre ?

In the treatment of neuralgia of the liver, *Aconite*, *Bell.* *Bryon.*, and *Nux Vom.* have proved in many cases eminently successful ; with a careful and well-regulated diet, change of air, and a resort to some of the thermal springs, as Bath, or Buxton.

CHAPTER IV.

JAUNDICE.

SYNONYMOUSLY.—Jaundice is recognized and known as
—the Icterus of Pliny the elder and Cælius Aurelianus
—the Morbus Regius of Celsus and Pliny the younger
—the Morbus Arcuatus of Columella—the Aurigo of
Plautus and Varro—the Cachexia Icterica of Hoffmann
—the Icterus of Boerhaave and Linnaeus—the Chole-
lithia Icterus of Young—and the Fellis suffusio vel
Obstructio of Cullen.

NATIONALLY.—The Jaunisse Ictère of the French; the
Die Gelbsucht of the Germans; and the Iterizia Citri-
nezza of the Italians.

HISTORICALLY.—Jaundice was well known and clearly
defined at a very early period of the world's history, as
the works of Hippocrates, Cælius Aurelianus, "the great
African physician," who flourished in the second cen-
tury B.C., Galen, Celsus, and many more, teem with
scattered allusions to Jaundice as a complication of
other disorders. Hippocrates, in describing the symp-
toms of the autumnal remittent fever of ancient Greece
—see Book I. on Epidemics—says,—“Some were
attacked with Jaundice on the sixth day, but these
were benefited either by a urinary purgation, or a dis-
order of the bowels, or a copious hæmorrhage, as in the
case of Heraclides, who was lodged with Aristocydes.”

In his third book on the same subject is to be found another case of considerable interest. Hermocrates, says that immortal author, who lived by the "NEW WALL," was seized with fever. He began to have pain in the head and loins; an empty distension of the hypochondrium; the tongue at first was parched; deafness at the commencement; there was no sleep; not very thirsty; urine thick and red; when allowed to stand it did not subside; alvine discharges very dry, and not scanty. On the fifth day, urine thin, and substances floating in it which did not fall to the bottom; at night he was delirious; on the sixth day he had JAUNDICE. In the forty-second "Aphorism," by the same author, a work so celebrated that Suidas, "who lived more than seventeen centuries after the time of the writer, and who no doubt spoke the established opinion of his age," does not hesitate to pronounce it to be a performance surpassing the genius of man, we find the following:—"In cases of Jaundice it is a bad symptom when the liver becomes INDURATED." It may be here remarked, as a well-known pathological fact, that Jaundice attended with Cirrhosis or Scirrus of the liver is necessarily all but hopeless, and this doubtless was the form of induration referred to by the sage philosopher of Cos, 450 years B.C.

In the sixty-second "Aphorism" we find the following:—"When Jaundice supervenes in fevers before the seventh day it is a bad symptom, unless there be watery discharges from the bowels." All the Greek authorities confirmed the truth of this prognostic, but the Arabian physicians called it in question.

Galen, A.D. 200, in his Commentaries, refers to the

complications of the autumnal remittent fevers with Jaundice, and further remarks that "when nature is unable to evacuate the bile it is collected in the skin, and occasions JAUNDICE."

DEFINITIONS OF JAUNDICE.—Copland defines Jaundice as a yellowness of the skin and eyes, sometimes passing to a yellowish-green hue, or even to a greenish-brown ; the urine of a saffron or deep colour ; the stools generally pale, and the course of the bile obstructed.

Murchison defines Jaundice as a yellowness of the integuments and conjunctiva, and of the tissues and secretions generally, from impregnation with bile-pigment.

Budd defines Jaundice as a yellow colour of the conjunctiva and skin, arising from the presence of the colouring matter of the bile in the blood and tissues.

It may further be observed that the term "Jaundice" is derived from the French *jaune*, yellow ; and the term "Icterus" from the Greek, signifying the golden thrush, a bird with yellow plumage, the sight of which by a jaundiced person was believed by the ancients to be death to the bird, but recovery to the patient.

THEORETICALLY.—Passing over the history and definitions of this subject, we encounter two leading theories relative to the different forms of Jaundice, each having a host of supporters.

One theory is, that the seat of the disease is to be looked for in a disturbance of the functions of the liver ; that it arises from abnormalities in the secretion or excretion of bile ; and that thus it exhibits symptoms indicative of derangement of the liver.

The other theory is that, under certain morbid con-

ditions of the system, substances are formed in the blood, without the co-operation of the liver, which in colour and other properties resemble the ingredients of bile, if they are not identical with them, but which only assume a pathological importance from their quantity being in excess. But, whichever theory be the correct one, this however we do know, that most, although perhaps not all, cases of Jaundice do arise from the reabsorption of the bile already secreted. As a general rule it is not a very difficult matter to point out the anatomical nature of the mechanical obstruction to the natural excretion of bile; as the experiments of Saunders in 1792, followed by those of Tiedemann, Gmelin, and others, go to prove that by applying a ligature to the *ductus communis choledochus*, "the common bile duct," Jaundice results from such obstruction, and the passage of the secretion into the lymphatics and veins follows. From these and other experimental investigations, coupled with the observations of many able men, Jaundice from reabsorption forms a fair starting-point for further pathological study; and in all cases and forms of this affection our chief object will be to search for all kinds of mechanical obstructions which tend to prevent the escape of the bile, or for other causes, which promote the passage of this fluid into the blood. Before, however, we proceed to investigate this pathological study, it may be as well to point out certain groups of symptoms, connected with other diseases, which may, to a casual observer, be mistaken for Jaundice.

Firstly,—There is that anaemic condition of young women, known as Chlorosis, or the green sickness, easily

distinguished, however, from Jaundice by a glance at the following tabular arrangement:—

In CHLOROSIS, the

Skin. Is of a dusky yellowish hue, or the countenance, lips, and tongue are deadly pale—a livid areola encircling the eyes.

Eyes. A pearly whiteness of the conjunctivæ.

Chest. Breathing hurried by slightest exertion, pulse small, frequent, and quick; systolic bellows-murmur at base of heart, without any other indication of heart disease, or of leukæmia; hysteria, amenorrhœa, and divers other forms of uterine and nervous derangements.

Digestion. Flatulency, acidity, and a singularly depraved appetite, chalk, lime, and other absorbents being greedily partaken of, and all accustomed food rejected.

Feet. Frequently affected with oedematous swellings.

Urine. Pale and limpid, with no traces of bile-pigment.

Alvine Secretions. Costiveness, sometimes alternating with diarrhoea.

Cutaneous Surface. Normal.

Secondly,—There is that peculiar greyish-yellow

In JAUNDICE, the

Skin varies in colour from a pale sulphur or lemon yellow through a citron yellow to a deep olive or bronzed hue.

Conjunctivæ uniformly yellow, and in some cases all white objects appear yellow.

No particular derangement save the heart's action, which is considerably retarded—pulse falling to 50, 40, and even 20 strokes to the minute.

Taste sometimes bitter, denoting the presence of taurocholic acid in the blood, flatulence, appetite varies—sometimes normal with a clean tongue, sometimes morbidly increased, with a craving for shell-fish, &c.

Never, except when connected with organic disease of liver or heart.

Urine of a dark brown or saffron colour, tinging the linen of the same colour.

Pale coloured, of a clayey consistency, and offensive.

Frequently covered with urticaria, lichen, carbuncles, and vitiligoidea, and a distressing form of pruritus.

waxen tint of skin, characteristic of organic visceral disease—and more particularly that hitherto considered incurable complaint—cancer. This, however, is easily distinguished from Jaundice—

By the absence of any yellow tint of the conjunctivæ;

By the absence of bile-pigment from the urine; and

By the presence of marked symptoms of visceral disease; and, in the case of Cancer, of the cancerous cachexia.

Thirdly,—We sometimes encounter a dusky yellowish colour of the skin in persons who have suffered long, or often, from malarious fevers, and sometimes also in those whose systems have been poisoned by lead. This condition is likewise easily distinguished from Jaundice by the

Absence of the yellow tint of the conjunctivæ,

Absence of the bile-pigment from the urine,

And the historic fact of the patient having suffered from malarious fevers; and of having lived in a malarious district or malarious country.

Fourthly,—In a large number of cases of the so-called Jaundice of new-born infants, “the Icterus Neonatorum,” or Yellow Gum. The yellow colour which appears on the third or fourth day after birth is not (as many a sage monthly nurse will have it) due to Jaundice at all; but is simply the result of changes in the blood in the over-congested skin—the vivid redness of the new-born babe fading away, as bruises fade, through shades of yellow, into the genuine flesh colour.

Infants, however, are sometimes prone to attacks of real Jaundice, the symptoms and causes of which shall receive due consideration in their proper place.

The spurious form of Jaundice already referred to is easily distinguished from a genuine attack by

The conjunctivæ being of the natural colour,

The urine being free from bile-pigment,

The gradual fading of the yellow colour of the skin after a few days; and by the infant appearing quite well, the bowels acting regularly, and the secretions being of a normal colour.

Fifthly,—to the close observer ; that peculiar bronzing of the skin arising from disease of the Supra-Renal Capsules, known as Addison's disease ; or that form of cutaneous disorder known as leucoderma, is not very likely to be mistaken for an attack of Jaundice ; it differs materially in the browner or more dusky nature of the discolouration—

It being darker in some parts of body than others, such as the face, neck, hands, areola of the nipples, axillæ, penis, and scrotum ;

In the extreme anaemia and frequent vomiting ;

In the whiteness of the conjunctivæ ; and

In the absence of bile-pigment from the urine.

Finally—There is a spurious form of Jaundice which has occasionally been successfully feigned by soldiers and sailors desirous of deserting the flag of their country, which it would be well for those who may be called upon to give an opinion to bear in mind.

In such cases the yellow colour of skin has been simulated by painting it with infusion of saffron, turmeric, rhubarb, broom-flowers, or soot ; whilst the

colour of the urine has been heightened by taking rhubarb or santonine, as pointed out by Gavin in his treatise on "Feigned and Fictitious Diseases."

As a counterpoise to such a fraud, it will be found by close inspection—

That the conjunctivæ are white;

That no bile-pigment can be detected in the urine by the usual test ; *

That soap and water, or better still a weak solution of chloride of lime, will at once remove the yellow colour from the skin; and that if the urine be coloured by the use of Santonine or Rhubarb, it will be rendered blood-red by the *Caustic Alkalies* or their *Carbonates*.

SYMPTOMATOLOGY.—In proceeding to describe the divers symptoms of Jaundice we may *in limine* observe that the bile-pigment permeates most of the organs and tissues of the body. It first accumulates in the blood, and from thence is carried into every part of the body circulated by that fluid; even the brain, bones, chambers of the eyes, and the foetus in its mother's womb. The intensity of Jaundice varies more or less in different organs and tissues of the body. When Jaundice depends on simple obstruction of the bile duct—*ductus communis choledochus*—the liver is the organ most deeply coloured, which often presents a deep olive colour. Next to the liver is the skin; and next to the skin is the urine. In

* Bile-pigment can always be recognized by the so tainted urine staining the linen of a yellow or saffron hue, or by applying the *Nitric Acid* test, as follows:—Pour a small quantity of urine containing bile on a white plate, or on a sheet of writing paper, and carefully allow a drop or two of *Nitric Acid* to fall upon it—an immediate play of colours will be produced around the spot where the acid falls, passing from brown through green, blue, violet, and red, into a dirty yellow.

proceeding then to enumerate the various phenomena connected with Jaundice, we shall select as the basis of our description that variety which owes its origin to a mechanical impediment to the excretion of bile, such as an obstruction in the common bile duct, as being the most simple form, and being less apt to be interfered with by disturbances of an extraneous nature. When such an obstruction takes place, the bile first shows itself after two or three days, by a yellow colour of the conjunctivæ; by a saffron-yellow, reddish-brown, dark-brown, greenish-brown, or brownish-black colour of the urine; by yellowness of the skin; by the exudation of bile-pigment through the sweat glands—particularly those in the axillæ—which tinge the linen of a yellow colour; by a peculiar itchiness of the skin which is especially troublesome in the night-time; by the eruption of urticaria, lichen, boils, and sometimes carbuncles; by derangement of the general sensations, with great exhaustion and debility, dejection of spirits, peevishness of temper, headache, and giddiness; sometimes by a bitter taste with a clean tongue; by a peculiar delusion of the sense of light, called Xanthopsÿ or yellow light—all objects seen by the patient are of a yellow colour; by a retardation of the heart's action, which in its contraction falls to a greater or less extent below the normal standard, in the majority of cases to 50 or 40 beats, and now and then to still fewer. Frerichs records two cases, in one the beats were only 28, in the other as low as 21. The writer has met with three cases where the beats did not exceed 33 per minute. This is particularly noticed when the patient is in the recumbent posture. The cause of this slowness of pulse is supposed by some to

arise from the presence in the blood of unchanged biliary acid salts, which exercise a specific paralyzing action upon the heart, and retard its action—similar to that of *Digitalis*.

A slow pulse, however, is not a constant symptom of Jaundice, as many cases occur in which the normal standard is maintained throughout the whole course of the disease.

The digestive derangements are peculiar and noteworthy : the functions of the stomach in many persons afflicted with Jaundice are unaffected ; the patient may have a clean tongue, and may enjoy an appetite which leaves nothing to be desired ; but there is at the same time an abnormal condition of the functions of digestion going on, and sometimes the appetite becomes depraved, or morbidly increased, or there may be a craving for peculiar articles of food, such as lobsters, crabs, mussels, or limpets. The want of bile does not influence in any marked degree the digestion of albuminous and carbonaceous aliments ; but according to the experiments of practical inquirers, such as Professor Staedeler, Neukomm, and Frerichs, the absorption of fat is considerably restricted. Persons afflicted with Jaundice have, as a rule, a great aversion to fat in any form or quality, and after partaking of such a large proportion of it appears unchanged in the evacuations. The loss in nutrition which results from this cause is sufficiently great to become observable in the course of time ; hence the general emaciation of the body in prolonged and chronic cases of Icterus.

Another result of this abnormality, "but perhaps of less importance," is, the loss of the antiseptic influence of the bile, which permits of unnatural and unhealthy

transformation of the contents of the alimentary canal, and the development of large quantities of gas; hence flatulence is a common symptom in Jaundice, more particularly if preference be given to animal food when the faecal matters emit a putrid odour. When, however, the food consists principally of vegetables and amylaceous substances, the evacuations yield no remarkable odour and are of an acid nature, because a part of the carbonaceous food undergoes acid fermentation in its course through the alimentary canal.

Of much greater importance, however, in a diagnostic point of view, and which should not be overlooked, are the peculiar changes which take place in the colour which the faeces are wont to exhibit in Jaundice, because it is from the character of that excretion that we can most easily draw our conclusions as to the more or less complete exclusion of bile from the intestine. When the obstruction of the bile-ducts is complete, every trace of bile-pigment disappears from the evacuations; they assume an ash or clay colour, which only varies according to the nature of the food; their consistence is increased, they become hard and firm, and the bowels become sluggish. This tendency to constipation is so very frequent in Jaundice that the assumption appears completely justified that it is owing to the absence of bile in the bowels. Whether the bile favours evacuation, by stimulating the peristaltic action of the intestines, or by increasing the natural secretion of the intestinal glands, or, again, by liquefying the ingesta, are questions which hitherto have not been satisfactorily cleared up. To my mind, however, the chief office of the bile appears to be, to act as an aperient; in fact, "Nature's own

black draught." It may, however, be observed that the character of the faeces are not always the same as just described, as the colour will vary more or less in accordance with the complete or incomplete obstruction to the escape of the biliary fluid into the duodenum. Amongst the partial or incomplete causes to the flow of bile may be enumerated—

1. A compression of a portion of the biliary ducts, as happens in cases of cirrhosis, or the so-called gin-drinker's liver, where the extreme ramifications of the biliary ducts are partially obliterated by the compression of the newly-developed areolar tissues; likewise in carcinoma, and tumours, which are wont to encroach upon certain of the large branches only.
2. Partial constriction of the principal duct, which impedes, but does not entirely arrest, the flow of the bile.
3. Catarrh of the *ductus communis choledochus*, and hepatic duct, in which there is tumefaction of the mucous membrane.
4. Angular concretions which cannot completely block up the canal.

Occasionally we find persons suffering from Jaundice passing stools of a normal colour, or of a pitchy hue. Two reasons have been assigned for this. Either the cause of the biliary obstruction has been suddenly removed, and the bile passes into the bowel, whilst the colour of the skin remains unchanged, as often happens in the case of Calculi, and other rapidly-disappearing causes of obstruction; or there is a sudden cessation of an excessive absorption of bile, known as POLYCHOLIA.

DURATION OF JAUNDICE.—The duration of Jaundice

is very various, and may fluctuate between a few days and several years.

The determination of the longer or shorter duration of the disease depends principally upon its primary causes, the persistency of which may vary, and which may of themselves help to bring about a fatal termination, speedily or slowly.

In the Dublin Hospital Reports, vol. v., page 103, there are two cases recorded by Drs. Graves and Stokes; in one the Jaundice lasted eleven months, and in the other two years, before nutrition became impaired. Budd met with a case of Jaundice in a man which lasted four years, with complete obstruction of bile, whose system continued well nourished. Deway describes a case of seven years' duration, and Van Swieten one of eleven years in a female, who was cured by "solvent medicines."

MODES OF TERMINATION OF JAUNDICE.—Jaundice does not disappear completely until some time after the removal of the causes which have occasioned the accumulation of colouring matter in the blood. When the cause of Jaundice consists in an obstruction to the passage of bile into the intestines, the recovery is announced by a return of colour to the stools; the colour becomes darker by degrees when the disappearance of the obstruction is gradual, as in catarrh of the bile-ducts; or they become rapidly overcharged with bile, when, from the sudden removal of the obstruction, the pent-up secretion of the gall-bladder at once finds its way into the intestinal canal, as in the case of "calcareous obstruction" (stones), or spasm.

Not unfrequently Jaundice terminates in death, which may be brought about by divers causes: sometimes by

exhaustion, sometimes by blood-poisoning, sometimes from the so-called cholæmic intoxication, and sometimes by perforation, followed by peritonitis, or suppurative inflammation of the substance of the liver.

DIAGNOSIS.—The diagnosis of Jaundice is on the whole not a very difficult task, as its outward manifestations present so many features which are indicative of the complaint; such as the yellow tint of the conjunctivæ and skin; the pale clayey fæces and saffron-coloured urine, which stains the linen of the same colour; the slow pulse and itchiness of the skin. Moreover, the urine may easily be examined by the usual tests, so as to detect with certainty any bile-pigment which may be present. But the real difficulties in diagnosing this disease—"if it may be so called"—commences when we come to determine the cause, and apply a suitable mode of treatment to each particular case. Moreover, it is incumbent on the physician to be very guarded in his prognosis of this complaint, as it depends principally upon its causes. The natural course and modes of termination of the primary disease, and the greater or less probability there is of interfering with effect in the way of treatment, constitute the chief considerations which alone will enable us to PREDICT the result. A correct knowledge of each particular case furnishes us with grounds for a correct "prognosis" at once, and only where this is impossible do we want to remain in doubt as to the result. It must, however, be borne in mind that there are cases of apparently simple Jaundice, without any perceptible organic disease of the liver, where symptoms of blood-poisoning sometimes make their appearance suddenly and quite unexpectedly;

death, as a general rule, invariably supervenes in such cases. Under these circumstances, the physician cannot be too guarded as to how he gives an opinion even in apparently TRIVIAL cases.

About six years ago I attended a gentleman who had resided for some years on the southern slopes of the South American continent. He returned to England invalided. He had, previous to my seeing him, consulted several medical men in London of the homœopathic school, who treated him for dyspepsia. I diagnosed abscess of the liver, which was confirmed by my friend, Dr. Vaughan Hughes. Shortly after this, alarming symptoms set in; the relatives suggested another opinion, and one of the city magnates was selected. We met in consultation, and to my utter astonishment he repudiated all idea of hepatic abscess, and gave a favourable prognosis; in three more days my patient was a corpse. A *post-mortem*, however, revealed an enormous abscess in the right lobe of the liver, having one communication with the stomach, and another with the right thoracic cavity of recent origin. This case will be fully recorded when I come to treat on the more serious and malignant diseases of the liver.

CAUSES AND TREATMENT OF JAUNDICE.—In the treatment of Jaundice the first and most important point to be considered is the various causes which have led to the accumulation of bile-pigment in the blood; the removal of these necessitates no further treatment against the Jaundice itself, for let it be clearly understood that Jaundice *per se* is not a disease, but merely a symptom of such; remove the cause, the icteroidal phenomena disappear.

As might naturally be expected, the means employed for accomplishing these indications for treatment vary considerably, according to the nature of the primary causes of the disease—the “*fons et origo mali*.” These will occupy our attention when we come to treat of the individual forms of Jaundice, and of the corresponding affections of the liver, calcareous deposits, and bile-ducts. There are certain cases, however, where the cause of Jaundice cannot be influenced by any special mode of treatment; under such circumstances, all we have to do is to counteract in a suitable manner the injurious influences which the abnormal distribution of bile may exercise upon the entire system.

For this purpose there are several leading points which should always be kept prominently in view, viz. :—

The regulation of the functions of the bowels which have become deranged by the stoppage to the flow of bile;

The purifying of the blood from the mass of bile-pigment which has accumulated in it; and

The consideration of the further consequences which may befall the entire organism from the presence and effects of the above abnormal conditions, and more especially from the changes in the tissue of the liver resulting from the stoppage to the normal flow of the bile; such results as general anaemia, dropsy, and cholaemia, etc.

The deranged functions of the bowels, which manifest themselves chiefly in the form of obstinate constipation and flatulence, may be considerably relieved by restricting the patient to easily-digested lean meat and vegetable

food, and by avoiding all fatty articles, or such as have a tendency to create flatulence ; and by the administration of *Alumin*, *Lycopa.*, *Lept.*, *Nux Vom.*, *Podoph.*, or *Sulphur*, the sitz bath, etc.

As regards the second indication for treatment, the renal organs contribute perhaps more than any other to purify the blood from extraneous matter ; and next to them come the glands of the skin surface. The secretion of urine—which in the later stages of the more intense forms of Jaundice is not unfrequently suppressed to a very serious and alarming extent, in consequence of the deposit of colouring matter in the minute structures of the kidneys—must be combatted from time to time by means of *Acon.*, *Canth.*, *Nux Vom.*, *Terebinth*, and particularly lemon juice, which I have found eminently efficacious as a diuretic in three cases of chronic Jaundice, with very scanty secretion of urine ; to these may be added diluent drinks, such as barley-water, linseed tea, seltzer and other mineral waters of a similar kind, tepid sitz, baths and cold compresses over the lumbar region. The functions of the skin—which is a great helper to the excretion of all kinds of effete matter—should be stimulated by means of tepid baths to which some ounces of soda may be added ; or better still, a series of Turkish baths, which should be taken every second or third day, and continued for a considerable length of time : these are particularly suitable for the removal of the deposit of bile-pigment in the epidermal layer of the skin, particularly when it remains long after the removal of the obstruction in the bile-ducts.

It is, however, when we come to consider those forms of Jaundice which arise as a sequence to organic disease

of the liver, such as atrophy, the destruction of numerous branches of the portal vein by the pressure of the enlarged bile-ducts, and from the disintegration of the hepatic cells, that our difficulties arise in a therapeutic point of view. Here we may have to encounter a general cachectic and anaemic condition of the system, general dropsy, and other symptoms indicative of a break-up of the constitution. Much, however, may be done by regulating the functions of the skin, bowels, and kidneys; by a carefully-selected diet; and by the administration of *Ars.*, *Chin.*, the *Bromide or Iodide of Potassium*, and the waters of Schwalbach or Pyrmont.

THE VARIETIES, SPECIAL CAUSES, AND TREATMENT OF JAUNDICE.—Jaundice, as I have already observed, is rather a symptom of disease than a disease itself; consequently it may spring from a variety of causes, a knowledge of which is of great importance to a successful treatment of the same.

There are few diseases which require so much discrimination as to the indications and means of cure as Jaundice. It proceeds in different cases from so many different pathological states, and sometimes from so many combinations of them, that the utmost attention and practical acumen are necessary to ascertain the morbid conditions and peculiarities of each case, and to determine what is most efficacious in removing them.

1. Jaundice may take place in consequence of a constricted condition of the *ductus communis choledocus* and *hepatic duct*, the result of catarrh of their lining mucous membrane, the "icterus catarrhalis," and most common form of Jaundice.

It is ushered in with symptoms of catarrh of the

stomach and bowels, which last for some days before the yellow colour of the eyes and skin can be distinguished. The region of the liver is painful on pressure, and the dimensions increased. The urine assumes a brownish colour, the faeces are pale and totally devoid of bile-pigment, the pulse is slow, and there is a general itchiness of the skin. This form of Jaundice will generally yield to *Aconite*, followed by *Podophyllum*, a cold compress over the region of the liver, and a spare, non-stimulating diet.

2. Jaundice may result from the impaction of gall-stones in the common biliary duct, thus preventing the escape of bile into the intestine and its consequent re-absorption into the system. This form of Jaundice is generally of short duration, and disappears so soon as the calculi have passed through the canal. But it sometimes, however, happens that a gall-stone becomes permanently fixed in the duct, or closure of the canal may take place from adhesive inflammation, each of which may terminate in Jaundice of a permanent character. The temporary form of this type is best treated by warm baths, friction, the application of hot compresses over the affected region, and the administration of *Bell.*, *Calc.-C.*, or *Lycop.*; and in the more protracted and aggravated forms by the inhalation of chloroform, which should be repeated from time to time as circumstances may require.

3. Jaundice may take place as the result of violent mental emotions, such as vexation, anger, or fright.

Physicians, in all ages, have recognized this form of Jaundice, and so far as our present knowledge extends, derangements of the nervous system may lead to accumulations of bile in the blood in two ways:—

Firstly,—By interruptions to the circulation of blood through the liver, arising from the influence exerted by the nerves over the caliber of the branches of the portal vein, and—

Secondly,—by interruptions to the heart's actions, the respiratory movements, and the renal secretion.

In violent mental emotions, induced either by vexation, anger, or fright, the epigastrum becomes suddenly compressed, and there is difficulty of breathing, a feeling of suffocation, and sometimes vomiting. The skin first becomes pale, and is soon followed by a jaundiced colour, whilst large quantities of urine are secreted, still devoid of colour. In such cases the Jaundice makes its appearance in a few hours, and sometimes—according to well-authenticated records—in a still shorter space of time. Villerme, in his "Dictionary of Medical Science," records a case in which two young men quarrelled, and drew their swords; one of them became suddenly yellow, and the other, terrified at this change of colour, dropped his weapon. Another case is that of an abbé, who became suddenly yellow, on a mad dog rushing against him.

This form of Jaundice soon passes off, in the generality of cases. But to this there are exceptions, "as we find in every rule." Cases of this kind are met with in which the disease takes on a malignant character, and in which death ensues after a few days, amid severe nervous symptoms, such as delirium and convulsions. Cases of the kind are recorded in the works of Morgagni and Villerme. The milder form of this kind of Jaundice soon disappears under the administration of *Acon.*, *Cham.*, *Ign.*, *Nux Vom.*, followed by *Sulph.*

4. In close alliance with Jaundice from mental emotion, we sometimes find that an icteroidal tint of the skin will follow the administration of ether and chloroform. It is also worthy of note that in such cases sugar has been observed to pass off by the urine.

5. It is recorded that Jaundice of a very sudden and severe form may follow the bite of venomous reptiles: this was observed by Galen, as far back as A.D. 200, who records the case of a slave who became intensely jaundiced from the bite of a viper; this was confirmed by Dr. Mead, an eminent English physician, who flourished in the early part of the seventeenth century. Results similar to those supervening upon the bite of a viper have been observed after the bites of rattlesnakes, as recorded by Moseley; and of scorpions and mad animals, as recorded by Bartholin and others.

The ancient physicians attributed the cause of this form of Jaundice to a spasm of the bile-ducts; or, as Fontana, in 1780, did, to a liquefaction of the bile, resulting from putrid decomposition.

It is more than probable, however, that the sudden shock (fright) given to the nervous system, producing, as in Jaundice from mental emotions, spasm and occlusion of the biliary ducts, was the chief cause of that form of Jaundice observed by those illustrious physicians of another age, consequently *Cham.*, *Ign.*, *Nux Vom.*, and perhaps *Lycopodium*, would prove the most appropriate remedies.

It is a striking feature in these forms of Jaundice that no perceptible obstruction to the flow of bile exists; this is proved by the bilious character of the evacuations, both by vomiting and by stool. It is also worthy

of note that the excretion of sugar in the urine generally follows.

Does the cause of the accumulation of bile in the blood depend upon metamorphosis of a morbid character in the blood itself? or on a deranged innervation acting upon the circulation and respiration as already referred to? or does it arise from congestion of the liver, followed by the mal-assimilation of sugar? If so, then I maintain that a preparation of the CURARI may prove a potent remedy in Jaundice of this type, as Claude Bernard has very clearly pointed out, that one of the pathogenetic effects of this poison on the system is to give rise to CONGESTION OF THE LIVER, and to the excretion of sugar in the urine. I venture to direct the attention of my colleagues to this fact, and shall be glad to receive any hints on the subject, as I am about to institute a series of experiments with "CURARI" in hepatic derangements, particularly congestion, a form by no means uncommon in fenny districts.

6. Jaundice may take place from pyæmic infection of the blood. Marechal, in 1828, was about the first to observe that individuals, in whose bowels pus existed, the skin, conjunctivæ, and other tissues of the body, exhibited a more or less jaundiced appearance. This has since been noticed by many other observers. *Arsenicum*, and perhaps *Lachesis*, or *Curari*, would prove potent remedies, combined with a series of pack, or Turkish baths.

7. Jaundice is no uncommon symptom of divers forms of eruptive and other fevers. We find it in close alliance with typhus, particularly the petechial or epidemic form. We encounter it running side by side with

the intermittent and remittent fevers of marshy districts; and so common is it in Algeria that it forms a prominent symptom in seven-tenths of the cases of intermittent fever of that country. We likewise meet with it as a symptom of the recurrent or relapsing fever of the British Isles. This is the same fever which gave rise to the great epidemics which have prevailed in Scotland, Ireland, and England, particularly in London and other large towns, since 1843. It is seen hand in hand with the enteric, pythogenic, or typhoid fever, which well-nigh robbed us of the heir-apparent to the British throne. I have met with well-marked cases of Jaundice, accompanying some severe cases of scarlatina, and in one case of a severe form of rubeola.

8. Jaundice forms a prominent symptom of that deadly fever so prevalent in the West India Isles, and that portion of the great continent of America which extends from the mouth of the Mississippi to the Rio de la Plata, and known as the typhus icterodes of Cullen,—the febris flava of the present nomenclature of the College of Physicians,—the fièvre jaune of the French,—the gelbes fieber of the Germans,—the vomito nigro of the Spaniards,—the pestilentia hæmagastrica of Copland,—the synochus icterodes of Young,—the febris flava Americanorum of J. Frank,—the febbre gialla of the Italians,—the yellow fever of the generality of Englishmen,—and the YELLOW JACK of the British tar. It may be defined as a malignant epidemic fever, usually continued, but sometimes assuming a paroxysmal type characterized by yellowness of the skin, and accompanied, in the severest cases, by hæmorrhage from the stomach, mouth, and nares—more familiarly known as the black vomit.

9. Jaundice has at various epochs assumed an epidemic form, more particularly in France and Germany.

In 1772 it broke out at the market town of Essen, in Westphalia; attacked principally children; assumed an intermittent form, and destroyed a great number of them.

In 1790 it broke out in Lüdenscheid; there children were all but exempt. It, however, attacked both men and women; and many of the latter, who were pregnant, aborted, and died in a few days of general coma and delirium.

In 1807-8, it appeared in the same form at Greifswald, and soon afterwards at Chasselay.

In 1826, it prevailed along a large portion of the coast of the north-west of Germany and of Holland.

Accompanying the generality of these epidemic visitations of Jaundice, were observed bilious, intermittent, and remittent fever, which usually presented the double tertian, or remittent type; and the anatomical lesions found were considerable enlargement and softening of the spleen, together with congestion of the liver; in addition to this congestion, there was found an abundant accumulation of black pigment in the spleen, liver, and blood. Delirium, coma, and convulsions were frequently found during life.

In the epidemics of Lüdenscheid and Chasselay, however, which ran their course without fever, it was found that they commenced with catarrh of the stomach and bowels, and were accompanied by light-coloured stools; in fact, they were fair samples of simple catarrhal Jaundice frequently met with in this country at certain periods of the year.

10. In a considerably large number of newly-born children, the skin and conjunctiva are tinged yellow, and the urinary secretion contains the brown colouring-matter of bile, which here, as elsewhere, indicates the existence of true Jaundice, and distinguishes it from all other yellow discolourations, and that laid down at page 39, which I have termed the **SPURIOUS FORM** of infantile Jaundice. This is the *icterus infantum*—*icterus neonatorum*—yellow gum, or true infantile Jaundice. As a general rule, the origin of this icteroidal appearance is connected with changes which the function and the circulation of the liver undergo during birth, and has been attributed to various pathological conditions or causes, viz.—

To catarrh of the bile-ducts ; occlusion of the ducts by thickened bile ; or by concretions, as noticed and recorded by Cruveilhier, Portal, and others.

To congenital obliteration of the bile-ducts.

To thickening of Glisson's capsule.

To congenital cirrhosis of the liver.

To a stagnant and altered condition of blood, contained in the umbilical vein, changing the state or colour of the serum.

To obstruction of the opening of the ducts from viscid meconium, or mucous sordes.

To a spasmodic condition of the excretory ducts.

To an inordinate quantity of the biliary secretion.

To obstruction, or a paralyzed condition of the secreting structure of the liver.

These and many more may be set down as causes of infantile Jaundice; but the mode of production of " *icterus neonatorum*," in ordinary cases, must be sought

for in the diminished tension of the capillaries in the tissues of the liver, which takes place upon the stoppage of influx of blood from the umbilical vein, and which gives rise to an increased transfusion of bile into the blood. In strong, fully-developed infants the equilibrium of pressure is soon restored, but in infants prematurely born, where the respiration is a long time in becoming established, and where the foetal vessels remain long open, a more or less intense degree of Jaundice is apt to make its appearance ; hence it is that we find that infants prematurely born are more liable to Jaundice than those born at full time.

The symptoms of infantile Jaundice usually appear soon after birth, sometimes even within a few hours, or the colour becomes most distinct about the third day, and then, as a general rule, lasts one or two weeks. It is generally attended with languor, drowsiness, and debility; the skin and eyes present a more or less jaundiced tint; the urine of a deep yellow; there is constipation; the stools are pale in colour, but afterwards resume their normal tint.

11. There are two distinct forms of Jaundice which affect woman during her pregnancy, which in their symptoms and results present very different features. One of these is of little importance, and easily removed by a very simple mode of treatment; but the other, however, is of very serious import, as we find it generally associated with serious organic lesion of the hepatic tissue, and almost invariably terminates fatally. The first of these forms makes its appearance during the later months of pregnancy, and is produced by the distension of the womb, or by the accumulation of faecal

matter in the transverse portion of the large intestines, acting as a foreign body, and pressing against the bile-ducts with sufficient force to impede the further flow of bile. The same form of Jaundice may likewise take place during the early months of pregnancy, which can generally be traced to sudden emotions of the mind, as grief, vexation, or that kind of anger which we sometimes find associated with those domestic broils which will occasionally take place in the best-regulated families ; this form, however, is quickly removed by such remedies as *Ignatia* or *Nux Vomica* ; the former, by the lady reclining, as a rule, on her left side, either in the recumbent or half-sitting posture ; and when caused by constipation, by the administration of such remedies as *Alum.*, *Bry.*, *Nux-Vom.*, *Sepia*, or *Sulph.*—These failing, resort should be had to the administration of an enema of tepid soap-and-water (soapsuds), or weak gruel, to which may be added a dessert or tablespoonful of salad or castor oil.

The second form is distinguished by serious derangements of the nervous system, and, so far as cases of it have as yet been examined, depends upon acute wasting of the liver, the result of inflammation of the spongy substance (parenchyma) of the organ ; the kidneys also, as a rule, are affected at the same time.

12. Finally, there is another kind of Jaundice which I am unwilling to omit in this brief sketch, a reference to which I have been unable to find in the voluminous works of Frerichs, the fascinating lectures of Murchison, or the practical treatises of Budd, Saunders, and others—namely, the green or black Jaundice. Synonymously :—The Μελαίνια νοῦσος of the Greeks ; the Icteria nigra of

Forestus ; the Icterus viridis, melas Icterus, vel melancholus of Fennel and Var. Auct. ; the Icterus melæna of Good ; and the green or black Jaundice of Baillie. Pathologically, however, this is merely the extreme grade of the disease in its milder and more tractable form.

Historically.—Aretæus, the Cappadocian, and supposed contemporary of Galen, A. D. 200, was the first to give us a description of this form of Jaundice. In his work on chronic diseases, article Icterus, he says :—“ It is superfluous in me to tell you whence the name is derived, further than that it is derived from certain four-footed and terrestrial animals called *ἰκτίδες** (ictides) whose eyes are of this colour.”

He then goes on to say :—“ There are two species of this affection, for the colour of the whitish-green species either turns to yellow and saffron, or to livid and black ; and the cause of these is the same as the cause of the two kinds of bile. In cases therefore, of black Icterus, the patients are of a dark-green colour ; are subject to rigors, become faintish, inactive, and spiritless ; emit a foetid smell, have a bitter taste, breathe with difficulty, are pinched in the bowels ; alvine evacuations like leeks, darkish, dry, passed with difficulty ; urine deeply tinged with black ; without digestion, without appetite ; restless, spiritless, and melancholic. It is more familiar to adolescents.”

Since the era of Aretæus, no very important contributions have been given on this subject, till down to the time of the late Dr. Baillie, who contributed an able article

* A species of ferret ; either the Mustela Erminea, or the Mustela Furo.

on the subject in the Transactions of the College of Physicians, vol. v. p. 143, entitled : "Observations on Green Jaundice" The symptoms are briefly these : The colour of the skin varies in depth from a yellowish-green to a deep green or olive colour. The temperature of the surface is not increased, but burning heat is felt in the palms of the hands and soles of the feet. The evacuations are often pale ; but sometimes they are dark-coloured—pitchy—with grumous coffee or chocolate-like matter, and slight diarrhoea. The urine is occasionally clear, but oftener very dark and loaded, imparting to the linen a dark, tawny hue. The patient is greatly depressed, physically and morally ; complains of anxiety at the epigastrium, and of tenderness either in that situation or in one or both hypochondria. A sensible enlargement of the liver is often felt, and sometimes also of the spleen. The pulse is usually natural—or slow—vertigo, sickness, and vomiting of a green acid colluvies, occasionally are present. In the intervals, the appetite is either capricious or but little affected.

This form of Jaundice seldom affects young persons. It is commonly met with in the aged, and is much more frequent in males than females, particularly in those who have lived long in unhealthy inter-tropical countries, or who, with great anxiety and fatigue, have been tried by frequent changes of climate. It is generally connected with the most chronic and profound organic lesions of the liver, especially those which involve, or destroy, its secreting structures, and obliterate the minuter ramifications of the ducts through the organ. It seldom admits of more than a partial removal, but usually terminates in either a fatal exhaustion,

or with coma, apoplexy, epilepsy, or palsy. Abdominal dropsy frequently takes place in its progress. Its course, in its slightest grades, is generally slow—sometimes continuing, with various fluctuations, for seven or eight years ; but, when the colour becomes very deep, it often terminates rapidly, in one of the above ways.

When this form of Jaundice is attended with pitchy, or dark grumous evacuations, there is generally either congestion of the spleen and of the portal system of vessels, with the secretion of a dark-green unhealthy bile, a portion of which is absorbed and deposited in the structure, particularly in the *rete mucosum*; or a congested and haemorrhagic state of the mucous membrane of the stomach, duodenum, and upper part of the intestines, owing to the obstructed circulation through the liver; but both pathological conditions may be present, giving rise to an exhalation of venous blood from this membrane, and thereby to the dark and grumous motions. The mucous membrane in these situations is usually found, on dissection, dark-coloured, mottled, softened, ecchymosed, or its venous capillaries loaded.

The morbid anatomy accompanying this and other profound cases of Jaundice, present features of grave import and considerable interest.

THE BODY is generally emaciated.

THE SKIN presents a deep-yellow or bronzed colour; the serum in the œdematosus limbs—when anasarca exists—the cellular, adipose, and serous tissues, the internal surface of the blood-vessels, the muscles, cartilages, tendons, periosteum, and bones, partake of the same colour.

THE LIVER has been found to present all those lesions which follow every form of inflammatory action ; sometimes it is considerably enlarged, its blood-vessels congested, its ducts engorged, and its structure softened, inflamed, deeply tinged or suffused with bile, and containing, in its substance, one or more abscesses, or the remains of such ; at other times we find the organ considerably diminished in size, hardened, scirrhouous, or tuberculated, and apparently devoid of blood and biliary secretion. In some cases, it is changed to a white parboiled condition ; in others, into fatty steatomatous, tallowy, or adipocerous substance. Occasionally, the ducts are loaded with green inspissated bile, or obstructed by concretions of cholesterine, or resinous matter. Sometimes we find the surfaces of the liver adhering to the adjoining organs. In other cases, one or more abscesses.

THE GALL-BLADDER is found to contain one or more calculi ; if solitary, it becomes, after a time, of considerable size, blocks up that viscus, distends its walls, and ulcerates its surface.

THE BILIARY DUCTS are frequently obstructed, either by gall-stones, or by the pressure of tumours in the pancreas, mesentery, pylorus, or duodenum ; and the common duct by scirrhouous and other tumours.

The stomach is another organ which becomes seriously implicated in aggravated cases of Jaundice, particularly when the disease has been occasioned by intemperance, and more especially by the abuse of ardent spirits.

The pyloric extremity is found thickened, cartilaginous, and constricted, and its mucous membrane is

studded with patches of erosion. Next to this, is the

Duodenum, which is often found inflamed, thickened, softened, indurated, or ulcerated, and in some cases apparently scirrhouss. Tumours also, of various kinds, have been found imbedded in its coats at the place where the biliary ducts empty themselves, which either entirely obliterate these apertures, or very greatly diminish them.

Finally, the pancreas, spleen, and right kidney are in some cases found considerably enlarged, and are the seat of Scirrus and many other abnormalities.

"There are few diseases," says Copland, "the nature and morbid relations of which have occasioned greater diversity of opinions than Jaundice; and there are—it may safely be averred—few diseases the treatment of which has created greater conflicts of opinion among physicians. On these grounds it may in truth be stated that there are few diseases which require more discrimination as to the indications, the selection of the remedy, and other means of cure than Jaundice. It proceeds, as we have already pointed out, in different cases, from so many different pathological states, and sometimes from so many combinations of them, that the closest attention and practical acumen are necessary to ascertain and distinguish the morbid conditions and peculiarities of each individual case, and to select the specific drug for their removal. It is requisite not merely to guard against vascular excitement on the one hand, and vital depression on the other, but in many cases, also, to prevent or to remove both, as being the more immediate causes of the obstructed secretion or excretion of bile. In all

cases the states of general and local vascular fulness or action, must claim our particular attention, and in many cases it will be found requisite to aid the former, whilst we diminish the latter.

Allopathically.—It becomes a matter of considerable difficulty to ascertain, what are the effects of medicines upon the *circulation and functions* of the liver ; for much of what has hitherto been said and written upon the subject, has been characterized by dogmatism rather than by truth—by vague assertions unsupported by facts. Some of the medicines which have been supposed to excite the liver to action most probably operate by removing slight obstructions from the mouth of the common duct by reducing vascular turgescence in the duodenum, and carrying off mucous collections ; among these may be mentioned the preparations of mercury, particularly calomel and blue pill, as the provings and experiments of Bennet of Edinburgh prove beyond doubt that no affinity exists between mercury and the liver.

Empirically.—Divers remedies have been recommended “for the treatment of Jaundice,” from the far-off epoch of Hippocrates to the present time. Foremost among these have been antiphlogistics, general blood-letting, emetics, laxatives, purgatives, diaphoretics and sudorifics ; anodyne and stimulating antispasmodics, etc.

Homœopathically and Hygienically.—Jaundice in its various forms and phases is fairly amenable to treatment. In the first form—the “*Icterus Catarrhalis*”—a larger number of cases have in my hands yielded quickly to a dose or two of *Aconite*, followed by *Podophyllum*; a compress over the region of

the liver and stomach, with a spare non-stimulating diet. In the second form—to warm baths, friction, the application of hot compresses over the seat of pain, or, what is still better, the application of a liniment consisting of *Tr. Bell.*, *Tr. Acon.*, and chloroform; the subcutaneous injection of morphia, and the administration of *Bell.*, *Calc.-C.*, or *Lyc.*; and in the more protracted and aggravated cases, the inhalation of chloroform, which should be repeated from time to time according to the severity of the symptoms. In the third form—to *Acon.*, *Cham.*, *Ign.*, *Nux Vom.*, and *Sulph*; and in the more severe and aggravated form to *Lach.* or *Curari*, and a series of Turkish baths. In the fourth form—to *Ign.* and Turkish baths, which will suffice in the majority of cases. In the fifth form—to *Lach.*, *Curari*, and Turkish baths, and perhaps *Cham.*, *Ign.*, *Nux Vom.*, and *Lyc.* In the sixth form—to *Ars.*, *Lach.*, and *Currai*, combined with a series of pack, and Turkish baths. In the seventh form—to *Acon.*, *Bry.*, *Merc.*, and *Lach.*, pack, and Turkish baths. In the eighth form—chiefly to *Lach.* and *Curari*. In the ninth form—to *Acon.*, *Merc.-Sol.*, and *Podolph.* In the tenth form, when it arises from catarrh of the bile-ducts—to *Cham.*, *Dig.*, *Merc.-Sol.*, or *Podoph.*, and the sudden application of cold water to the hepatic region by means of a small douche, a jug, or flowering-pot. Many cases of this kind have in my hands quickly yielded to this mode of treatment.

When from congenital obliteration of the bile-ducts, thickening of Glisson's capsule, or congenital cirrhosis, the treatment can only be palliative.

In the eleventh form there are two types—the simple and malignant; the first has already been discussed. The

second form is distinguished by serious derangements of the nervous system, coupled with acute wasting of the liver, which will demand prompt and energetic treatment. This should consist of *Acon.*, to subdue inflammatory action; *Bell.*, *Cham.*, *Coff.*, *Hyos.*, or *Nux Vom.*, to cope with the exalted sensibility of the nervous system. *Curari* and *Lach.* are also worthy of trial.

In the twelfth and last form, which is one of the most terrible and obstinate types of Jaundice we have to contend with, being generally connected with the most chronic, and profound organic lesions of the liver and other adjacent viscera, no radical cure can be looked for; but much may be done by properly-chosen medicines, a carefully-selected diet, a series of pack, compresses, and Turkish baths, change of air and scene, and a resort to some of the mineral waters adapted to that class of complaints; such as the waters of Karlsbad, Marienbad, Kissengen, Homburg, Vals, Vichy, Ems, Cheltenham, or Llandrindod in Radnorshire. Independently of the effects of the water itself, which, when taken in large quantity, finds its way through the walls of the portal vein, and gives rise to an abundant secretion of thin bile—these mineral waters are chiefly indebted for their action to the soda and neutral salts which they contain.

They are with difficulty replaced by any other remedies, in cases where the Jaundice owes its origin to chronic congestions of the liver, with obstinate catarrh of the bile-ducts and mucous membrane of the stomach and duodenum, to gall-stones, etc.

Their selection must, however, always be determined by the nature of the fundamental affection of the liver,

and by the constitution of the individual patient. It should also be borne in mind, that the constant use of these waters is prejudicial in the case of new growths, such as cancer, or in more profound degenerations of the organ, such as cirrhosis. They are not, therefore, to be resorted to when there is any uncertainty in the diagnosis, or when the indication to be fulfilled in each individual case is not perfectly clear.

CHAPTER V.

INFLAMMATION OF THE LIVER.

SYNONYMOUSLY.—Inflammation of the Liver is recognized and known as the Hepatitis of Galen—the Morbus jecinoris of Celsus—the Inflammatio hepatis of Sennertus—Hepatalgia apostematoso of Sauvages—the Cauma Hepatitis of Young—and the Empresema Hepatitis of Good.

NATIONALLY.—Hepatite, vel Inflammation du foie, of the French; Entzündung der Leber, of the Germans; Inflammazion de fegato, Epatite, of the Italians; Inflammation of the Liver, or Hepatic Inflammation, of the English tongue.

HISTORICALLY.—Inflammation of the Liver, terminating in the formation of abscess, was well defined by Hippocrates as far back as 450 B.C., afterwards by his able follower Galen, A.D. 200 (see his “De Locis Affectis,” lib. v., cap. 7). It was not, however, until the beginning of the seventeenth century, when pathological anatomy began to be studied, that a firm foundation was established for the clinical observation of these obscure

affections. Among the valuable collections of the *post-mortem* observations of this era we recognize those of Thomas Partholin, Nicholas Tuepins, D. Panaroli, J. I. Webfer, F. Ruysch, J. C. Peyer, and Theophilus Bonet, and the masterly researches of the immortal Morgagni, whose work appeared in 1762. From that period to the end of the eighteenth century a great number of physicians occupied themselves with anatomico-pathological investigations, and added new and valuable observations to those already known. Among these may be more particularly mentioned T. Walter, Sandifert, Portal, Lieutund, John Hunter, and more especially Bichat, who, uniting to a genius eminently generalizing an admirable talent for analysis and observation, shed, not only on pathological anatomy, but on the whole of pathology, a clear light, whose rays have directed the assiduous labours of many a brilliant successor. For the study of "true suppurating Inflammation of the Liver," however, a disease which is only found prevalent in tropical countries, particularly in the East Indies, we owe far more to the researches of our own countrymen than to any of the Continental physicians, as recorded in the able works of Annesley, published in 1841; Charles Morehead, 1856; W. Saunders, 1809; Griffiths, and others.

True suppurating Inflammation of the Liver is a rarity in our own climate, as well as in other countries in the temperate zone, although numerous cases have been designated as such, when the symptoms present were only due to "hyperæmia" of the gland, a catarrh of the bile-ducts, or to an inflammatory condition of the serous covering, or of the hepatic vessels. We do,

however, encounter in this country two forms of Inflammation of the Liver of considerable frequency, and of far more importance than "suppurative hepatitis." Of these, one terminates in simple or granular induration, known as cirrhosis, interstitial hepatitis, hob-nailed liver, the nutmeg liver, but more familiarly known at the London hospitals as the Gin-Drinker's liver; the other in softening and acute wasting of the whole gland, whilst its history coincides, for the most part, with that of malignant typhoid jaundice, slightly referred to in the articles on those symptoms of hepatic derangement. Inflammation of the Liver is a protean disease, which is sometimes difficult to diagnose, and sometimes difficult to treat, owing to the fact that the individual parts only of that complex organ may be affected, whilst the process itself may vary greatly in intensity, extent, and result. Thus we may have—

1. Inflammation in the fibrous covering of the gland (which is a reflection of the peritoneum), or in the sheath of the vessels, in "Glisson's capsule," or in the bile-ducts, the glandular parenchyma, or the blood-vessels (the portal or hepatic veins).
2. The inflammation may invade the substance of the organ as diffused hepatitis.
3. As chronic inflammation, which is an insidious form, ultimately terminating in cirrhosis, or the Gin-Drinker's liver.
4. The inflammation may restrict itself to a certain radius, followed by abscess. This is the circumscribed inflammation, terminating in abscess—or the tropical "hepatitis abscess" of some writers—which shall receive special notice in another chapter of this work.

Let us briefly examine these in the order as set down.

1. Inflammation of the capsule of the liver, and of Glisson's capsule. The Peri-hepatitis vel Peritonitis Hepatica of some writers.

CAUSES.—Inflammation of the covering of the liver may arise from many causes. We sometimes meet with it as a part of general peritonitis; at other times the result of external violence directed against the hepatic region, as once occurred in my own practice, from the kick of a horse. The result was fatal, while a *post-mortem* examination revealed not only inflammation of the capsule, but rupture of the liver as well. In other cases the inflammatory process is found to spread from neighbouring structures, and morbid deposits; such as, in pleurisy of the right side, the serous coverings of the diaphragm, ulceration, and cancer of the stomach. But diseases of the liver itself, such as abscess and chronic induration (cirrhosis), are the most prolific causes; as in such cases Necropsy invariably reveals the capsule thickened, and united by numerous bands of cellular tissue, which extend to the neighbouring peritoneum, the surface of the ribs, or to the adjacent portion of intestines.

Peri-hepatitis in its more ordinary forms is not as a rule a very serious disease, but may become so when implicated with thickening of 'Glisson's capsule,' the portal vein, artery, or vena cava. Hence the importance of paying strict attention to all the symptoms which indicate its presence.

SYMPTOMATOLOGY.—The leading characteristics which attend Peri-hepatitis are, a certain amount of tenderness of the region of the liver, which is increased upon pressure, motion, and upon deeply inspiring; there is

also a certain amount of febrile excitement, coupled with occasional signs of jaundice, which, as a rule, are but slight and of short duration. In addition to these symptoms, we must not omit to recount the various phenomena which accompany the divers complications sometimes accompanying Peri-hepatitis, such as pleurisy of the right side; simple ulcer, and cancer of the stomach: with its train of cachectic symptoms ; and when the portal vein, the hepatic veins, or the biliary ducts become involved, the symptoms of disease of the liver, or of chronic wasting, or of obstruction of bile, become daily more and more manifest.

TREATMENT. — *Allopathically.* — Peri-hepatitis is treated by the local abstraction of blood, either with leeches or the cupping instrument, by warm cataplasms, *Calomel*, and the neutral salts.

Homœopathically.— This form of inflammation will yield kindly enough to *Aconite* and *Bryonia* in alternation, followed as circumstances may require by *Belladonna* or *Nux Vomica*; to warm cataplasms, compresses or fomentations, coupled with a carefully-selected and rigid diet, perfect rest, together with a due regard to the indications for treatment derived from the primary disease.

If from ulcer, *Arg.-Nit.* and *Merc.-Corr.* or *Merc.-Sol.* will be found valuable remedies, together with the blandest diet.

If from the cancer, *Ars.*, *Nux Vom.*, *Baryta*, *Carb.*, *Phosphorus*, or *Verat.-Alb.*, with the same form of diet, and nourishing enemas; and,

If from pleurisy, *Acon.* and *Bry.*, followed, when effusion has taken place, by *Merc.-Sol.*, *Iodide of Potass.*, and *Sulphur*.

CHAPTER VI.

ACUTE OR YELLOW ATROPHY OF THE LIVER.

SYNONYMOUSLY.—The *Atrophia hepatis flava sive acuta, Hepatitis diffusa, or Diffuse Inflammation of the Liver.*

HISTORICALLY.—Morgagni, in his work entitled, “*De sedibus et causis Morborum,*” gives us the first authentic records of acute wasting of the liver. Long before this, however, cases of the same kind were noticed by various authors, as Jacob Vercelloni in 1660 gives a clear account of the disease from which his brother suffered. Being hardly pressed by his creditors one night, he became suddenly jaundiced from fright, and soon fell into a restless delirium, with an irregular pulse and panting respiration, and died on the third day. Rubeus, about the same time, gives an analogous case. Baillou records the case of a boy, only fourteen, who, on the fifteenth day of an apparently slight attack of jaundice, with clay-coloured stools, suddenly fell into delirium and convulsions, gave utterance to loud articulate sounds, and suddenly died. In the works of Morgagni we find other cases recorded, and in addition two interesting ones from the practice of Valsalva, in both of which the jaundice was the result of violent mental emotions. Both patients were young, and died, one in two days, the other in twenty-four hours after the com-

mencement of the jaundice. For a more accurate description of the anatomical character of Acute Atrophy of the Liver we are deeply indebted to the indefatigable labours of more recent pathologists, particularly Rokitansky of Vienna, and Budd.

SYMPOTMATOLOGY.—Acute Atrophy of the Liver presents symptoms of grave import, which ought not to escape the notice of the practitioner. It is sometimes preceded by a preliminary stage; at other times it manifests itself without the slightest warning. The incipient symptoms present nothing very characteristic; usually they resemble the symptoms of an acute gastro-enteric catarrh. A patient so affected gets out of sorts, and simply complains of dulness and headache; the tongue is coated; the bowels irregular, sometimes relaxed and sometimes costive; the abdomen is tender, particularly that portion which appertains to the region of the liver: and the pulse is accelerated. Sooner or later, sometimes not until after the lapse of several weeks, a slight jaundiced tint supervenes upon these derangements. This jaundice may exist in the simple form for from eight to fourteen days, or even longer, before the local changes take place in the liver and spleen, haemorrhages, and the very serious nervous derangements which so prominently characterise this disease become apparent.

Acute Atrophy of the Liver runs a more or less violent career, and in severe cases death closes the scene at the end of twelve or twenty-four hours; in other cases after two or five days, and is scarcely ever prolonged to a week or ten days.

In the severe types of the disease the premonitory

symptoms are usually ushered in with vomiting, by means of which there is first thrown up the ordinary contents of the stomach, then is followed grey mucus, and lastly blood, in the form of a dirty brown or black coffee-ground substance. There is severe pain in the head, which soon lapses into delirium. In the generality of cases this delirium is noisy ; the sufferers scream out, beat themselves, endeavour to leave their beds, and are with difficulty restrained. In other cases they are quieter, lay in a comatose condition, and are only roused by loud shouting. The delirium is sometimes succeeded by convulsions, which extend over most of the voluntary muscles, or are confined to certain localities, such as the muscles of the face and neck ; occasionally they appear in the form of trismus or lock-jaw ; and in other cases one half of the body is implicated to a greater extent than the other. After a time the patient becomes by degrees more and more tranquil, the state of excitement gradually passing into a stupor, and finally into a deep coma ; there is a vacant stare, the pupils become large, react but slowly to the light, and the respiration becomes sighing, intermittent, and stertorous. The pulse, which at first is slow, continues so as long as the Jaundice remains simple ; but as the nervous system becomes more exalted, it increases in frequency, and gradually rises to 110 or 120, and even more ; at the same time it presents variations in frequency and volume which are very remarkable, as sometimes, when the patients are roused, the pulse rises from 70 or 80 to 120 or 130, which soon lapses again into its normal standard, or even below it. These variations in the frequency of the pulse cease when the disease draws towards a close

the pulse then increases in frequency, diminishes in calibre, and becomes smaller, smaller, and smaller, until it can no longer be felt, and the mirror, when placed to the mouth, is no longer tarnished.

The tongue and teeth are covered, at an early stage of the disease, with a sooty crust; the abdomen is tender, particularly in the right hypochondriac region; and even when the patient is in a dreamy, comatose condition, the application and pressure of the hand over that region is responded to by Hippocratic distortion of the features, and loud muttering complaints. The boundaries of the normal dimensions of the liver become less and less as the disease advances; whilst that of the spleen is increased. The bowels are, as a rule, confined, and the stools are firm, dry, pasty, clay-like, and deficient in bile, and at a later period are of a dark tarry colour, indicating the presence of grumous blood. The secretion from the kidneys and bladder is normal as to quantity, always of an acid reaction; its specific gravity varies from 1012 to 1024, and holds in solution albumen, amorphous mucus, epithelium, urinary casts, and a brown colouring matter, which yields bile-pigment to the usual chemical tests; but the most important constituents found in the urine of those suffering from acute, as well as chronic Atrophy of the Liver, and which may be considered as pathognomonic of the complaints—conditions, likewise, which hitherto have not been found in any other diseases—are large quantities of Leucine and Tyrosine, coupled with the gradual disappearance of the urea and phosphate of lime.

CHEMICALLY.—Leucine is, when pure, a white, non-

crystallizable, odourless, and tasteless organic fatty-looking substance, composed in 100 parts of

Carbon	.	.	54.96
Oxygen	.	.	24.44
Nitrogen	.	.	10.68
Hydrogen	.	.	9.92
			—
			100.00

And although looking something like fatty matter, yet it is quite different from it in its chemical reactions ; for it is very soluble in water, strong acids, and alkalies, sparingly soluble in alcohol, and quite insoluble in ether.

In searching for Leucine, about half an ounce of urine should be slowly evaporated to the consistency of a syrup, set aside to cool, and afterwards examined under the field of the microscope, when circular, oily-looking discs, occasionally laminated like the granules of potato starch, will be revealed to sight. The best chemical test hitherto discovered is that proposed by Scherer, and confirmed by Frerichs and Harley—namely, to put a small quantity of the urine on a platinum spatula, add nitric acid, evaporate to dryness, and then treat the residue with caustic soda, which dissolves it. When the solution thus obtained is concentrated, an oily-looking drop is formed, which can be readily rolled on the spatula.

Physiologically.—Leucine has for some years been known to scientific men as a normal product of some of the organs of the body ; and according to the researches of Liebig, Scherer, Frerichs, Neukomm, and Harley, it may now be said to be one of the normal constituents

of the spleen, liver, pancreas, lungs, brain, thymus, and thyroid glands; but whether it exists in the healthy living body as such, or is only a morbid product of decomposition, is not yet a settled question. Be that as it may, one thing is quite clear—viz., that its quantity is vastly increased during disease, and that its appearance in some of the excretions is a diagnostic sign of considerable importance and of great value.

Secondly, Tyrosine belongs to the same class of substances as Leucine. It differs, however, from the latter by its being crystallizable, and when pure it crystallizes in fine white, glistening, stellate groups of small prisms; or very thickly-set stellate groups of fine needles or spiculated balls, not unlike a rolled-up hedgehog, with the bristles sticking out in all directions.

Chemically, it is similar to Leucine, one hundred parts yielding

Carbon	52·67
Oxygen	26·52
Nitrogen	7·73
Hydrogen	6·08
<hr/>	
	100·00

Tyrosine is an odourless, tasteless substance, but when burned gives off an unpleasant smelling vapour. It is soluble in acids, alkalies, and boiling water; it is insoluble in cold water, ether, and alcohol.

The most simple test for the detection of Tyrosine is that proposed by Scherer—namely, to moisten a few crystals with strong nitric acid on a spatula, and slowly evaporate to dryness. The residue, which is of a fine rich yellow colour, when moistened with hydrochloric

acid becomes red. If the mixture be again evaporated to dryness, it yields a blackish residue ; reactions which are thought to be quite characteristic of Tyrosine.

Tyrosine, however, as met with in urine, is generally so mixed up with Leucine and other abnormal matters, that, before applying the test, it is necessary to purify it. This may be done by precipitating all the colouring matter by means of a solution of basic acetate of lead ; filter, and then free the liquid from the excess of lead by means of a current of sulphuretted hydrogen ; again filter, and evaporate the clear liquid to nearly dryness, when the Tyrosine will crystallize in the white stellate groups of small prisms, or thickly-set groups of needles or spiculated balls already described.

Another mode of testing for impure tyrosine is that recommended by Hoffman—namely, add to the suspected solution a little nitrate of the protoxide of mercury, which will throw down a red precipitate, and turn the supernatant liquid rose-coloured if Tyrosine be present.

Frerichs gives the following : The suspected substance is put into a watch-glass along with sulphuric acid, and after standing half an hour the mixture is diluted with distilled water. It is next neutralized with carbonate of soda, filtered, and to the clear filtrate a few drops of perchloride of iron, devoid of acid, is added, when the presence of Tyrosine is recognized by the formation of a dark purple colour.

Should these tests, however, fail in yielding sufficient evidence of the presence of either Leucine or Tyrosine, we must then resort to the use of the microscope, which fortunately is amply sufficient for all practical purposes.

PHYSIOLOGICALLY.—Tyrosine may be obtained from almost all the organs in which Leucine is to be found. It can scarcely, however, be said to be a normal constituent of the human frame, but rather appears to be one of the artificial products of the decomposition of highly nitrogenized matters. It also proves that it can be artificially obtained in large quantities by acting upon horn, hair, or feathers with sulphuric acid.

PATHOLOGICALLY.—These remarkable and peculiar properties of the urine indicate the existence of grave and deeply important, although long unrecognized, abnormal conditions of the metamorphosis of matter; and they furnish no small insight into the transformations which take place in the albuminous principles, in cases where the functions of the liver are arrested. They likewise furnish prominent landmarks to the anxious physician, which enables him to give due warning that the appearance of Leucine and Tyrosine in the urine of his patients is an almost certain sign of a rapidly approaching fatal termination. As a pathological product, Tyrosine is occasionally met with in the kidneys, in the urine, and in the liver in a free state. In acute yellow atrophy, it may be almost said to be constantly present in all of these situations, as Frerichs, Neukomm, Scherer, Staedeler, Harley, and others, have met in all cases brought under their notice, well-formed crystals of tyrosine in the tissues of the atrophied liver, kidneys, and in the urine, without subjecting the one or the other to any chemical manipulation, but merely placing the morbid product under the field of the microscope.

Tyrosine has also been detected in the urine of those suffering from severe small-pox, from typhus compli-

cated with jaundice, and from chronic atrophy of the liver, supervening on obstructed gall-duct. The peculiarity of the urine of most value in a clinical point of view is the deposit, upon exposure to the cold, of a greenish yellow precipitate, which, even with the naked eye, and still more readily upon microscopical examination, can be recognized as differing from all other deposits.

This has been amply confirmed by the observations and researches of Frerichs, Murchison, Harley, and others. Harley, in his excellent work on the "Urine and its Derangements," puts the following leading and practical question :—"Where does the tyrosine met with in disease come from?" "The results," says that author, "of my experiments on animals to which jaundice had been artificially given led me to the belief that tyrosine and leucine stand in the same relation to each other in disease as the two bile-acids, glycocholic and taurocholic, do in health. Glycocholic acid is crystallizable, taurocholic is not."

"The urine of some of the dogs to which I gave artificial jaundice by the subcutaneous injection of bile, contained both leucine and tyrosine, and even in one of these cases crystals of tyrosine spontaneously formed in the bile taken from the animal's gall-bladder immediately after death, and merely allowed slowly to evaporate. In another case, again, free crystals of tyrosine were encountered in the tissue of the liver itself, all of which facts led me to the conclusion that tyrosine and leucine are the products either of the arrested or of the retrograde metamorphosis of glycocholic and taurocholic acid."

ANATOMICALLY.—Acute Atrophy of the Liver presents, on *post-mortem* examinations, structural changes and lesions of grave and diverse kinds; the only constant one, however, is a marked diminution in the size of the liver and an enlarged condition of the spleen; hence we must regard the liver as the grand centre of mischief from whence the varied derangements in the functions of the other organs take their rise. Taking the liver in its normal condition as weighing about 4 lb. avoirdupois, and its relative weight to that of the entire body as 1 to 25 or 30, and taking the statistics, as recorded by our own Bright, and Budd, and Frerichs of Vienna, of 31 cases of acute wasting of that organ, it was found that the diminution in volume was estimated at one-third, one-half, or even two-thirds of its normal size. Bright saw the weight reduced to 2 lb., to 23 oz., and even to 19 oz. Frerichs, in two cases, found the liver to weigh only 1 lb. 13 oz. avoirdupois, the relative weight in these instances to the whole body being as 1 to 68·5 and 1 to 54·2, which clearly indicated a wasting of more than one-half of the organ. Buhl found the liver reduced to 22 oz., and I have met with three cases of a like kind; one weighed 23, one 22½, and the third 19½ oz. respectively. In the majority of cases the size of the gland is diminished in every direction, more especially in its thickness; the capsule is puckered, and the parenchyma flabby and shrivelled; a section of the organ presents the colour of yellow ochre or rhubarb, the blood-vessels are empty, and the outlines of the lobules are no longer visible. The gall-bladder in many cases is found empty, or contains only

a small quantity of grey mucus, or a turbid, pale yellow, rarely brown or greenish, fluid. The stomach and intestines present no important alteration of structure beyond here and there patches of ecchymosis; and the contents of the intestines consist either of pale, dry faeces, or black tarry matter. The muscular tissue of the heart is flabby and shrivelled, and its lining membrane is of a jaundiced colour. The blood presents divers characters: sometimes it is dark violet and incompletely coagulated; at other times hard firm coagulae of fibrin separate from it, and the number of white corpuscles are increased, more particularly in the blood found in the right ventricle. Extravasations of blood are frequently found in the mucous membrane of the stomach and bowels, beneath the serous coat of the intestines, and between the folds of the mesentery and omentum, in the retro-peritoneal areolar tissues, and beneath the pleura and pericardium. The kidneys and brain also are seriously involved in the destructive inroads made on the general constitution by Acute Atrophy of the Liver; in the former is found deposited bile pigment, fatty degeneration and granules, with a flabby and shrivelled condition of its tissues; in the urine the almost total disappearance of urea, and the appearance of that substance in the blood; the occurrence of albuminuria and those remarkable products, leucine and tyrosine. In the latter the brain is found softened with an inordinate quantity of serum in the ventricles.

NATURE OF THE DISEASE.—Acute Wasting of the Liver is related to those obscure and, to many, unfathomable processes, as to the nature of which various

opinions have been advanced. The simple fact of the disappearance in a few days, or may be in a few hours, of one-half or one-third of a large organ of the body, abounding as it does in blood, without the slightest alteration in the blood-channels leading to it, is one of those extraordinary phenomena which has no analogy in any other known disease.

Rokitansky, of Vienna, in 1852, was about the first pathologist to give us an accurate description of the anatomy of this affection, who regards the process as one of bilious liquefaction, caused by the excess of the elements of bile, formed in the blood of the portal vein, which, becoming separated, permeates the whole vascular apparatus of the liver, and causes the destruction of the glandular substances by liquefaction.

Henoch assumes it to be a case of true polycholia, in consequence of which all the excretory ducts become distended with secretion, and compress the blood-vessels; hence arises a considerable impairment in the nutrition of the hepatic cells, which ultimately leads to their disintegration by fatty degeneration.

Von Dusch maintains that the disease proceeds from paralysis of the bile-ducts and lymphatic vessels, which gives rise to an infiltration of the organ with bile, and through this to a solution of the cells.

Buhl regards the disease as analogous to typhus, and the disintegration of the hepatic cells he attributes to the same cause as the concomitant haemorrhage, namely, to the marked weakening of the heart's action, and to the rapid decrease of the peripheric metamorphosis of matter; and the changes which the liver undergoes in typhus, pyæmia, and other blood-poisoning diseases, are

considered by him as the incipient stage of Acute Atrophy.

Bright attributed the disease to a diffuse inflammation of the gland. Under the appellation of Hepatitis, these views have since been enunciated by Engel, Wedl, and Bambergen, who have accounted for the destruction of the cells by a fatty degeneration, arising from an acute exudative process.

Frerichs coincides, to a great extent, with the views propounded by Bright and his followers; and although not quite agreeing with their theory as to the destruction of the hepatic cells by fatty degeneration, yet he is quite of opinion that an exudative process constitutes the starting-point of the disease.

ETIOLOGICALLY.*—We are still very much in the dark as to the real and precise mode of origin of Acute Atrophy of the Liver. We can, therefore, in the meantime only enumerate the various circumstances under which so terrible and fatal a disorder makes its appearance. It is, however, a well-established fact that females are more prone to it than males; as, out of 31 cases collected by Bright and others, there were 9 men and 22 women, so that the number of the latter more than doubled that of the former. Of the 22 females one-half were attacked during pregnancy, consequently we are justified in setting down sex and pregnancy as predisposing causes of no small import. Nevertheless Acute Atrophy of the Liver is not by any means a disease of daily occurrence even among pregnant women, as out of 33,000 cases recorded by Spaeth, he only found this

* Αἰτία, cause, and λόγος, a discourse.

complication in two instances. Acute Wasting of the Liver in pregnant women may be recognized by the fact that it is almost invariably accompanied by fatty degeneration of the kidneys.

As regards age, the majority of those attacked with the disease are under the middle epoch of life. Of 31 cases collected by Frerichs there were—

6	between 10 and 20 years of age.
20	" 20 "
3	" 30 "
2	" 40 "
	30 " 40 " 60 "

CAUSES.—The circumstances under which Acute Atrophy of the Liver occurs, constitute a very interesting part of its clinical history; these causes, however, still require further investigation, as many are, as set down by various authors, of an obscure nature. The most prominent, however, hitherto known are nervous influences, such as a severe fright or a sudden outburst of passion. Sir Thomas Watson, in his classic lectures on the practice of medicine, states that scores of instances are on record where jaundice has suddenly appeared under such circumstances; and that such cases are often fatal, with head symptoms, convulsions, delirium or coma, &c., supervening upon such jaundice. Similar cases have likewise been recorded by much older writers, namely, Vercelloni, Morgagni, Ballonius, and others. That a sudden "outburst of passion" may act as an exciting cause of "Acute Atrophy of the Liver" the writer has no moral doubt whatever, as a case of the kind occurred in his own practice about six years ago. The patient was a short, thin, wiry-looking woman, about thirty-five years old, and the mother of

several children. She had a very active brain, which was endowed with remarkably keen perceptive faculties, coupled with a highly *nervous* and *excitable* temperament ; the greater portion of her face was covered with the *Pannus hepaticus*, or liver spots ; and take her all in all, she was indeed a fair specimen of a " veritable Xantippe." Her husband, on the contrary, was a man of " fair proportions," manly in form, gentlemanly in manner, and amiable in disposition, and submitted with stoical philosophy to his wife's frequent outbursts of ill temper. In the month of July, 1865, after an unusually violent and outrageous paroxysm of passion, she became suddenly jaundiced, followed by headache and despondency, which alternated with irritability and great restlessness. She occasionally vomited mucus, bile, and the ingesta ; the tongue became furred, the mouth dry, the appetite failed, the bowels irregular, and there was considerable pain (on pressure) over the epigastric and hypochondriac region. She continued in this condition for two days, when she aborted. After this the symptoms became more alarming, and were succeeded by low, muttering delirium, tremors, twitching, and rigidity of the muscles ; the urine was scanty, the bowels irregular, and the faeces of a dark, grumous character ; the tongue became brown and dry, and the teeth and lips covered with sordes ; the pulse was small, quick, and jerking, varying from 120 to 130 strokes to the minute. Percussion revealed considerable diminution in the hepatic area, with an increase over the region of the spleen ; the abdomen was tympanitic. In this condition she continued for another twelve hours, when she became more tranquil and passed

into a state of stupor; the pupils became large, and reacted but slowly to the light; the respiration became sighing, intermittent, and stertorous, when she shortly afterwards ceased to breathe. A *post-mortem* examination, twenty-four hours after death, revealed considerable diminution in the normal condition of the liver, which appeared flabby and shrivelled. The spleen was considerably enlarged, and the heart flabby and shrivelled. The urine, a portion of which was obtained before death, was of a dark colour, specific gravity 1020, and of an acid reaction; it yielded traces of albumen, but no traces of bile, urea, or uric acid; it was also very scanty in chlorides, sulphates, and earthy phosphates, but yielded bountifully of leucine and tyrosine.

2. Next in frequency comes pregnancy; for of twenty-two patients referred to by Frerichs, one-half were attacked while pregnant; and from the third to the sixth month is the most common period of pregnancy at which the disease shows itself.

3. Dissipation, including drunkenness, venereal excesses, and constitutional syphilis, appears in some cases to be a predisposing cause, particularly the latter, as many writers on syphilis have observed the frequent occurrence of jaundice about the commencement of what is known as the "secondary stage" of that disease, and in some of these cases Acute Atrophy of the Liver has been found to follow the icteroidal symptoms.

4. Malaria.—Budd, Graves, and others have pointed out that malarious districts, with their poisonous emanations, are prolific sources from whence Acute Atrophy of the Liver may spring, as instances are recorded where

several cases of what appeared to have been undoubtedly this disease occurred in the same house.

5. The blood-poisons of typhus fever, the yellow fever of the West Indies, and allied diseases have been known to give rise to Acute Atrophy of the Liver. "Jaundice," says Murchison, "is a very rare complication of typhus, or scarlet fever, but in more than one instance where it has occurred, crystals of leucine and tyrosine have been found in the tissues of the liver and kidney by me." Most writers on the "Typhus Icterodes," or yellow fever of the tropics, have described fatty degeneration of the liver as one of its most characteristic lesions; but hitherto none have pointed out the presence of leucine or tyrosine, which, as Frerichs says, is "pathognomonic" only of acute wasting of that organ. In 1842, whilst in charge of 450 Portuguese emigrants, which were transported from the charming island of Madeira to British Guiana, I had ample opportunities, whilst stopping at the latter place, of confirming the views set forth by writers on diseases of the tropics, that fatty degeneration of the liver is commonly found in those who have died of yellow fever. In addition to the privilege of inspecting the public hospital of that dependency, which was situated in one of the outskirts of George Town, and surrounded by fine cocoa-nut, banana, and other tropical fruit trees, and watching for some days about thirty cases of yellow fever in its various gradations, from the remission of the mild, or common biliary, to the low typhoid state, and its black vomit, I devoted some hours in carefully inspecting the various "morbid specimens" deposited in the museum attached to that institution, which were courteously

shown me by the late Dr. Edward Bascome, who was at the time one of the leading physicians in that once flourishing colony, and who, a few years afterwards, succeeded me as medical superintendent to the Sussex House Asylum, under the proprietorship of the late Dr. Forbes Winslow.

6. Lastly, Dr. Budd has ventured to suggest that a special poison engendered in the body itself by some faulty digestion or assimilation may cause Acute Atrophy of the Liver. It may be that the nervous influences already referred to may have something to do in developing such a poison.

DIAGNOSTICALLY.—Acute Wasting of the Liver is not at all times easy of recognition, as there are other diseases which, "symptomologically speaking," bear certain resemblances to that affection, and which may, in the hands of an incautious practitioner, be mistaken. The most prominent of these are—

1. Typhus, complicated with jaundice.
2. Bilious and remittent fevers of various kinds.
3. Pyæmia: and among the local diseases may be mentioned meningitis, pneumonia, and peritonitis.

(a.) In contradistinction to the symptoms of Acute Atrophy of the Liver, typhus may be recognized by its rose-coloured eruption, its bronchial catarrh, its diarrhœa, and the wandering character of its delirium.

(b.) Bilious and other fevers by their more or less distinctly marked remittent types, and by repeated returns of rigors.

(c.) Pyæmia by repeated shiverings, and the presence of the deposit of pus.

Those local diseases referred to—viz., inflammation

of the membrane of the brain, the lungs, and peritoneal covering, which, when associated with jaundice and delirium, present a train of phenomena very similar to Acute Hepatitis, but which, however, can be easily distinguished by a careful examination of the individual organs.

The morbid phenomena exhibited in the liver itself are of greater importance in diagnosis, "not so much, however, in the tenderness of the organ, which in some cases is more or less absent, or but slightly felt," but in the marvellous rapidity by which the organ is diminished in volume until all dulness on percussion entirely disappears. Of equal diagnostic value are the changes which take place in the urine—viz., the almost total disappearance of urea and uric acid, and the deposition of sediments of tyrosine and leucine, and the vomiting of blood, which have invariably been met with as prominent symptoms of Acute Atrophy of the Liver.

TREATMENT.—*Allopathically*.—The mode of treatment adopted by those physicians who have hitherto encountered Acute Atrophy of the Liver has been anything but satisfactory. Still there are a few well authenticated cases on record, where patients have recovered even after falling into a condition bordering on coma. "In Acute Atrophy of the Liver," says Murchison, "all treatment has hitherto proved unsatisfactory." "The results of treatment hitherto recorded," says Frerichs, "are of a hopeless character; hence no approved empirical method exists." According to Corrigan, of Dublin, the progress of the disease is arrested by emetics; according to Griffin, of Limerick, and Hanlon, of Portarlington, by drastic purgatives;

according to Frerichs, of Braslau, who has only seen one case, it yielded favourably to purgatives and mineral acids ; and, according to Budd, even coma may probably be prevented, or removed, and the life of the patient saved by active purgatives. Leeches, blisters, and the cupping instrument have been applied to the head, and liver ; senna, aloes, colocynth, and the sulphate of magnesia have been administered as purgatives ; the subnitrate of Bismuth, combined with the aqueous extract of *Nux Vom.* has been prescribed to stop vomiting ; and ice, both externally and internally, with alum, gallic acid and similar astringents, to check haemorrhages from the stomach ; and ether, camphor, and musk to rouse nervous depression.

Homœopathically.—Little, I fear, can be said, in a practical point of view, on the Hahnemannian mode of combating that terrible, and too fatal disease ; as I have been unable to meet with any well-authenticated cases in the now extensive literature (*little, however, of real practical value*) of our doctrine, beyond the case recorded by me, which unfortunately proved fatal. Much, however, I am persuaded, may be accomplished by Homœopathy, provided a clear and unmistakable diagnosis be made out, coupled with judiciously-selected remedies and the aid of hydropathic appliances and hygienic measures. It is, however, in the early stage of the malady, and before delirium, coma and other cerebral symptoms manifest themselves, that most advantage may be expected from this, or any other mode of treatment, however fortified and bolstered up it may be by the halo of antiquity and the so-called orthodoxy.

To grapple with a disease so little known in the wide

arena of medicine, the first onslaught and invasion of which is so sudden, its causes so obscure, its symptoms and effects so rapid, and its results so disastrously fatal, requires more than ordinary experience and acumen to distinguish at one glance its peculiar and mysterious characteristics, and apply its appropriate remedies.

In the homœopathic *Armamentarium* we possess many remedies of undoubted value. Among these may firstly be mentioned those brilliant American medicines, the *Iris Versicolor*, *Leptandra Virginica*, and *Podophyllum Peltatum*; secondly, *Acon.*, *Bell.*, *Crotalas*, *Horridus*, *Merc.-Sol.*, *Nux Vom.*, *Strychnine*, and *Chamomilla*, with *Bryonia*, *Lachesis*, *Chin.*, and *Sulphur* as intermediate auxiliaries. With these much may be done to prove that a specifically selected drug, and specifically selected hygienic measures, may go far to diminish much of the terrors and heavy mortality, which now environ "Acute Atrophy of the Hepatic Organ." In the first stage of the disease, which I am disposed to look upon as "a paralysis of the gland," caused by the invasion of some subtle poison, whether it be fright, or a miasma, through the nervous system, our primary object will be to rouse its lost functions, and restore it to its normal standard. And how is this to be done? We possess in the Mandrake and Culver's Root such remedies: they rouse to vigorous action the functions of the liver, they stimulate the kidneys, they augment the functions of the whole glandular system, and cleanse the intestinal canal of all foreign and irritating matter. Either of these remedies should be administered in potent doses, and repeated at frequent

intervals, or until bilious motions appear. Should there exist at the same time tenderness over the region of the liver, a well-adjusted compress should be applied, or a powerful cold douche should be directed to the surface of the hypochondria from a distance, and kept playing for some minutes ; here, also, *Aconite* would be expected to play an important part as a curative agent. The provings and toxicological records show most conclusively that that drug exercises a specific action upon the functions and tissues of the liver. *Aconite* causes Jaundice, which is one of the pathognomonic signs of Hepatitis ; it likewise causes bilious vomiting, a foul bilious coating upon the tongue, painful feeling of swelling in the pit of the stomach, violent constriction, tightness, pressure, fulness, and weight in the hypochondriac region ; tensive, painful swelling under the ribs ; shocks and pressure in the region of the liver, with oppression and arrest of breathing ; pricking in the liver and bowels, and a constrictive pain in the region of the gall-bladder, arresting the breathing. The first or second decimal dilution of this medicine should be selected, and administered at frequent intervals, or in alternation with one of the foregoing medicines every one or two hours.

This mode of treatment should be unflaggingly persevered in, coupled with cheering society, the holding out hopes of recovery, change of scene, careful attention to the condition of the stomach and bowels, and the production of calm, sound sleep, by means of *Coffea*, *Bell.*, *Hyos.*, *Acon.*, *Gelsemium*, or *Glonoine*. Should the disease, however, refuse to yield to those remedies, and pursue its onward course of destruction, by invading the

brain, which we generally encounter in the form of DELIRIUM, COMA, and CONVULSIONS, all known measures calculated to promote the elimination of those poisonous properties,—UREA and URIC ACID,—from the system, should be called into action.

It is in this way, perhaps, that the purgatives, as prescribed by Griffin and Hanlon; the laxatives by Budd; and the purgatives and mineral acids by Frerichs, have done some good. We have, however, in our own *Leptandra* and *Podophyllum*, potent aids—MEDICINES which not only penetrate into the inmost recesses of the liver, but act as purgatives as well; consequently, the action of these drugs should be assiduously kept up; the skin also should be submitted to the influence of warm baths, and more particularly the “Turkish bath.” In fact, I would not hesitate to keep my patient in the latter for from two to three hours at a time, followed by the cold douche, which should be played up and down the spine, and over the whole of the hepatic region, for three or four minutes each time, and even longer. The Kidneys, which have not hitherto received that attention they deserve, ought not to be forgotten in the treatment of Acute Atrophy of the Liver, as microscopic examinations have revealed in these organs the deposit of bile-pigment; the glandular epithelium infiltrated with granules; and in most cases in a state of fatty degeneration; and the tissue itself flabby and shrivelled. The urine also undergoes important changes; as we have the almost *total disappearance* of the Chlorides, Sulphates, Earthy Phospates, URIC ACID, and UREA from that fluid; and the accumulation of the *latter* in large quantities in the blood; the temporary occurrence of albuminuria

also ; all of which point to an important implication of the kidneys.*

In the treatment of the kidneys, as a complication of Acute Atrophy of the Liver, we must be guided by the totality of the symptoms which present themselves to view.

In the congestive stage no better remedy can be selected than *Terebinthinæ* 3x.

In the inflammatory stage *Acon.*, *Gels.*, or *Bell.*, with an occasional dose of *Canth.* or *Cannabis Sativa*.

When the symptoms of blood-poisoning, haemorrhage, sickness, &c., make their appearance, such symptoms should be met by their appropriate remedies.

Haemorrhages from the stomach and bowels, by ice externally and internally, *Terebinth*, *Ham.*, *Ipec.*, *Millefolium*, or *Arsenicum*.

To check vomiting: *Ipec.*, *Nux Vom.*, or *Kreasote*.

To remove coma: *Opium*, *Bell.*, *Hyos.*, or *Hell.*, and, if possible, the Turkish bath.

To remove convulsions and wild muttering delirium: *Crotalus* or *Lachesis*, and more particularly the Turkish bath.

And when there are symptoms of nervous depression, alternating with convulsions, *Camphor* or *Moschus*.

* Uræmic poisoning is a subject of grave importance to the medical man, as it may occur in the course of any disease. True uræmia depends on the arrested elimination of the poisonous material by the kidneys, and its reabsorption into the circulation. There can be no doubt that urea is a powerful irritant poison, and when injected into the veins of animals it rapidly induces fatal convulsions, and to remove such poison from the system, quickly and effectually, I know of no more powerful eliminator than the Turkish or Roman bath.

CHAPTER VII.

DIFFUSE INFLAMMATION OF THE LIVER—THE CHRONIC FORM.

(*Hepatitis Diffusa Chronica Adhaesiva.*)

SYNONYMOUSLY.—The chronic form of Diffused Inflammation of the Liver is known as the Hepatitis Diffusa Chronica Adhaesiva, of Aritæus—the Marasmus Hepatis of Bianchi,—the Hepar Durum Tuberculosa of Morgagni,—the simple Granular Induration of Matthew Baillie,—the Interstitial Hepatitis of Abercrombie,—the simple Granular Induration of some French writers,—the Hepar Duram Vitellarium* of Clossy,—the Hob-nailed Liver of Hoecker,—the Cirrhosis of Laennec,—the simple Atrophy of Carswell and Kiernan,—and the Gin-drinker's Liver of English practitioners.

HISTORICALLY.—Aritæus, the Cappadocian, and contemporary of Galen, A.D. 131, was about the first to describe “Induration of the Liver” as a consequence of inflammation,—

“ Verum si a phlegmone hepar non suppuratur, nemini dubium fuerit, tumorem durum subsidentum in scirrum mutari ac Stabiliri.”—Book I., chap. 13.

* From its resemblance to the Vitellarium of a laying hen.

"But if, after the inflammation, the liver does not suppurate, the pain does not go off, its swelling, changing to a hard state, settles down into scirrhous." In which case, indeed, the pain is not continuous, and when present is dull, and the heat is slight; there is loss of appetite, delight in bitter tastes, and dislike of sweets; they have rigors; are somewhat pale, green, swollen about the loins and feet, forehead wrinkled, belly dried up, or the discharges frequent. The cap of all these bad symptoms is *dropsy*."

"In the dropsy, provided there is a copious discharge of thick urine, having much re-crementious sediment, there is hope that the dropsical swelling may run off; but if the urine be thin, without sediment, and scanty, it conspires with the dropsy. The chief causes alluded to by this ancient and eminent author are primarily" INTEMPERANCE, a proof that teetotalism was not in the ascendency at that remote epoch; and protracted diseases especially from dysentery and colliquative wasting, and it was customary to call such persons *tabid*, who died emaciated from ulcers and atrophy of the liver.

Hippocrates, who flourished 450 B.C., makes mention of something similar, for in the 42nd Aphorism of his masterly work we find the following:—"In cases of jaundice and dropsy they are bad symptoms when the liver becomes indurated." What form of induration, however, he does not say; but it is a well-known pathological fact that jaundice or dropsy, attended with scirrhous, or cirrhosis of the liver, is necessarily all but hopeless.

Vesalius, a celebrated Belgian anatomist of the fifteenth

century, records the case of a lawyer who, after having suffered for a long time from symptoms of "obstruction of the liver," died suddenly while sitting at table. A post-mortem revealed the trunk of the portal vein torn, the abdominal cavity filled with blood, and the liver **HARD** and **ATROPHIED**.

Nicolas Tulph, of Amsterdam, another eminent physician and patriot, at about the same era, found on opening the body of a man, who had suffered from Ascites, and Tympanitis, and who had passed blood upwards and downwards, the spleen enlarged, and the liver **HARD** and **SHRIVELLED**.

John Baptist Morgagni, an Italian physician of great renown in his period—the "sixteenth century," records several cases of the same kind, partly from his own observations, and partly from the works of Posth, Wepfer, and Ruysch.

With regard to the nature and character of the disease, various conflicting opinions have been advanced by different authors. Morgagni looked upon the external nodulated surface of the organ as the formation of a new deposit—tubercles; Matthew Baillie and Meckel fell into the same error. Lawrence, who was the first to give it the name of Cirrhosis—from the Greek (*kirros*—Yellow) also enunciates the same view—that the nodules were new formations, which might be developed in other organs as well, and which, like other new formations, might undergo softening.

In 1826, Bouillaud endeavoured to prove that no new formation existed, and that the yellow granulations consisted in the disorganization of the glandular paren-

chyma, from diseases of the vascular connecting tissues. Andral in the main supported this theory except that he bestowed greater prominence upon the distinctions between the red vascular portion and the yellow secreting tissues of the gland; and looked upon those abnormal granulations as hypertrophy of the latter, accompanied by atrophy of the red vascular portion, which in many cases appeared to be converted into fibrous tissues. Cruveilheir steps forward and disputes the existence of two different substances in the liver, and considers the disease under discussion to be the result of atrophy of one portion of the gland, with hypertrophy of the other portion. Becquerel constructed a new theory altogether, and maintained, that the so-called yellow substance was the peculiar seat of the disease, and further thought that it became infiltrated with an albuminous substance which was followed by hypertrophy; that the red vascular portion was compressed by it, and became atrophied, and that at a more advanced stage the yellow substance itself became likewise atrophied.

That eminent pathological anatomist, Carl Rokitansky, distinguishes two different modes of origin of Cirrhosis of the liver, the one proceeding from a morbid development of the capillary blood-vessels, owing to an excessive secretion of bile; the other due to a chronic inflammation of the hepatic parenchyma.

Oppolzer attributes the disease mainly to partial impermeability of the finest ramifications of the portal vein, resulting from inflammation and obliteration, or from lateral compression by the bile ducts, which are enlarged, or, loaded with fat.

More recent writers, such as Gubler, Budd, Heüoch, Bamberger, and others refer cirrhosis to a chronic inflammation of the liver.

The French pathologists already referred to arrived at no clear or definite results, because they all proceeded upon indistinct views of the microscopical anatomy and structure of the hepatic organ; and it was left to the brilliant investigations of our own Carswell, and more particularly to the late Dr. Kiernan to point out to the present and future generations the true nature of cirrhosis, and designated by them "Atrophy of the liver."

ANATOMICALLY.—The cirrhosis of Lænnec is one of the most important forms of atrophy of the liver which comes under the notice of the physicians. In it we find the organ is diminished to one-half, or even to one-third of its normal bulk: and how are we able to account for all this? Let us see. One seldom has an opportunity of tracing the development of induration of the liver during life, or of examining anatomically the early stages of the various morbid tissues; for as a rule the disease only comes under notice when it is more or less developed, and when the consecutive disorders draw attention to the organ primarily affected. Hence in the majority of cases the **GIN-DRINKER'S** liver can only be inferred during life by tracing backwards the clinical history of such cases, where these morbid changes are found after death.

The liver, "as we have already pointed out in another part of this Essay," is constructed of certain blood-vessels, lymphatics, nerves, lobules, and bile-ducts, which are supported and welded together by a framework of connective (areolar) tissue, which per-

vades the whole organ, both internally as well as externally. Beneath the peritoneal covering there is a capsule of connective tissues containing a large number of elastic fibres which envelop the outer surface of the organ. In addition to this there is another fibrous tissue composed of the same elements, and known as "Glisson's capsule;" this penetrates the liver at its fissure and accompanies the various vessels, nerves, absorbents, and bile-ducts as far as their very finest ramifications. In addition to all this there is a still finer structure, an "alveolar matrix" in the "gossamer-like" meshes of which lie nestling the hepatic cells and the extreme ramifications of the capillary system.

The progress of the "gin-drinker's" liver is slow, very so, and insidious; its history extends over many years, and for clinical purposes may be conveniently divided into two distinct stages, each having its respective anatomical, pathological, and symptomalogical, characteristics.

SYMPTOMATOLOGY.—The early symptoms of cirrhosis are obscure, and may be chiefly referred to a disordered digestion; there is a capricious and defective appetite; there is a furred and loaded tongue—particularly in the morning; there is frequent nausea and qualmishness, with an occasional tendency to reject the contents of the stomach; there is at times a slight degree of fever; there is a sense of weight with a dull, aching, or obtuse pain in the right hypochondrium, which shoots up under the right shoulder-blade, increased by pressure or by lying on the left side. The region corresponding to the liver is tense and distended, and the size of that organ is increased in size, which may, on careful palpation, be felt cropping out below the margin of the floating ribs.

The countenance becomes sallow; there is general languor and depression of spirits, flatulence, an irregular action of the bowels, sometimes costive, sometimes relaxed, sometimes pale and clayey, sometimes dark, with a faint jaundiced tint of the skin and conjunctivæ. After a longer or shorter duration these symptoms may abate, although the disorganizing process may still go on in the liver, and gradually undermine the constitution; consequently, these symptoms, however trivial they may appear to a casual observer, ought not to be treated lightly, especially when present in a patient known to be fond of his DRAMS, one of the most prolific causes of cirrhosis of the liver.

Not unfrequently the disease may set in with symptoms of a more severe and prominent character, and which commence with vomiting and purging, and other symptoms of intense "gastric catarrh." At other times we encounter all the phenomena of acute congestion of the liver, viz., fever coupled with pain, tenderness, and enlargement of the organ, with nausea, vomiting jaundice, and high-coloured urine, containing bile-pigment and a heavy deposit of lithates. Such is a brief outline of the leading symptoms generally encountered in the first or early stages of cirrhosis.

ANATOMO-PATHOLOGICALLY.—We find in this stage the liver enlarged and increased in consistency, caused by a congested or hypertrophied condition of the areolar framework, (Glisson's capsule). The surface of the organ is covered by a smooth, opaque, thickened capsule, studded with flattened projections, which vary in size from a pin's head, a homœopathic globule, to a small pea : similar nodules are also found in the interior of the

structures, which are separated from each other by narrow strips of grey, or more or less vascular "areolar tissues;" in some cases the colour is dark from the presence of bile-pigment; in other cases pale, from the deposit of fatty matter.

In the second stage, symptomatologically speaking, the patients still complain of feeble digestion, which is easily disordered by articles of diet that formerly could be taken with impunity. The appetite falls off. There is distention and tenderness of the epigastrium along with flatulence and obstinate constipation; after a time these symptoms abate, but return from time to time from any slight and trivial cause. By degrees such patients lose flesh and strength; the colour of the skin becomes either pale, earth-coloured, or a dirty yellow, whilst the skin itself is dry, scaly, and rough. The abdomen now becomes distended, and fluctuates, the prominent outlines of the liver are no longer felt by either percussion or palpation, but a close examination reveals atrophy of this organ, and considerable enlargement of the spleen.

Onward now is the course of destruction of cirrhosis, a general condition of emaciation and debility sets in. The watery portion of the blood is effused into the abdomen (ascites), producing distention of that cavity, and, as a consequence, urgent and distressing dyspnoea. Hæmorrhages take place from the stomach and intestines, the nose and mouth; the urine, at first tolerably abundant, now becomes more and more scanty as the flood of dropsy advances, and, at the same time, puts on a deep-red hue, often turbid, and deposits a brick-red sediment. The dyspnoea becomes more urgent day by day, and in

most cases a diarrhoea now sets in, which sooner or later, terminates further suffering by death.

In other cases the fatal termination is induced by inflammation or congestion, and œdema of the lungs ; at other times it occurs under symptoms of acholia ;* when the sufferer becomes deeply jaundiced, the skin studded with purple spots or bruises, delirium, convulsions ; and finally, a deep coma closes the scene.

Such is a general outline of the chief symptoms which characterize the second stage, and closing scene of cirrhosis.

ANATO - PATHOLOGICALLY.—In this the second stage the disease differs in many important respects. The liver now is reduced in size, particularly the left lobe, which is often found shrivelled up into a small membranous appendage. Semi-globular knobs of unequal size and form are thickly scattered over its surface. The serous envelope is thickened and tough ; numerous bands of connective tissue pass from it to the neighbouring organs, such as the diaphragm, colon, stomach, and spleen. Upon making a section of a cirrhotic liver, the surface presents a cartilaginous hardness and leathery tenacity. The knife grates, "as it were," in cutting through it. Broad and narrow lines of connective tissue surround the granulations, and send streak-like processes into their interior. These granulations are in most cases dark, or of a pale yellow. A large portion of the hepatic cells are destroyed, and their remains are found in the form of small masses of "brownish pigment" scattered through the filaments of the newly formed connective "areolar tissue." Other

* Bile-poisoning.

portions constitute the substance of the granulations, and may remain for a certain period intact; but in the further and more advanced progress of the disease these cells likewise undergo great changes, which materially interferes with their healthy and normal functions, from the deposit of fatty substances, and various kinds of pigments, the result of a deranged nutrition of the liver, produced by a slow and latent inflammation. The deposit of pigment, from which the term cirrhosis (yellow) is derived, is but seldom absent. This is caused by the hypertrophied connective tissue pressing against the extreme radicles of the bile-ducts, and thus giving rise to a retention of the secretion, followed by an icteroidal condition of the liver. This colouring matter accumulates in the form of a fine orange, or sulphur yellow-granules. Besides this there is another colour to be met with in a cirrhotic liver, which is of a dirty red-brown or black pigment, the result of decomposition of the red globules of the blood. There is an increase in the amount of connective (areolar) tissue. This increase is first met with in the prolongations of "Glisson's capsule," which accompany the finer subdivisions of the vessels in the remotest parts of the interior of the liver; from this it gradually proceeds to invade the substance of the "lobules," and by degrees increases so in breadth as finally to destroy the whole secreting portion of the organ. The vascular apparatus also does not escape the ravages of chronic atrophy of the liver. The trunk and large branches of the portal vein have been found considerably enlarged, and filled with clots of blood; the smaller branches narrowed or totally destroyed to an extent proportionate to

the disappearance of the glandular substance of the organ. The trunk of the hepatic artery is generally dilated, and its capillary network far more extensive than in its normal condition. The bile-ducts at the periphery of the globules are in a great measure obliterated by the pressure of the newly formed connective tissues. The walls of the gall-bladder are thickened, and adhering to the neighbouring structures, and its contents are in most cases scanty and liquid and of a pale orange or yellow colour. In extreme cases of cirrhosis, when the secreting and circulating functions are almost or entirely destroyed, nature makes a grand and munificent effort to prolong life by establishing a collateral circulation.

The late Dr. Kiernan, who was the first to discover the true nature of cirrhosis, has left on record several interesting cases of the kind. In one where the liver had diminished to more than one-half its normal size, he discovered on injecting it that a collateral venous circulation had been established by way of the diaphragm.

In another case, that of a woman who had been tapped "ninety times," he found upon injecting the liver that the same kind of collateral circulation had been established. The circulation through the liver had been impeded by the development and deposit of dense "areolar tissue"—every floodgate, in fact, was blocked up and hermetically sealed, and the greater part of the blood of the portal vein had found a new channel through dilated vessels upon the surface of the organ and through the diaphragm, and from thence into the general circulation. In this case there were numerous bands of adhesion

between the liver and the diaphragm, and between the intestines and the walls of the abdomen, and these also were traversed by large veins conveying blood from the portal vein into the general venous circulation.

COMPLICATIONS.—Irrespective of the diseases of the liver, we often encounter affections of other organs of the body which are sometimes independent of the hepatic disorder, but at other times are closely or remotely connected with it. To the former belong the deposit of tubercles, and emphysema of the lungs; diseases of the heart, carcinoma, delirium tremens, a lardaceous spleen, syphilitic affection of the bones, lardaceous deposit in the kidneys, and the *morbus Brighti* of drunkards. To the latter belong pneumonia, pleurisy, peritonitis, dysentery, haemorrhage from almost every part of the body, ascites, and anasarca.

M. Hanot, in his thesis (December, 1875), states that he has made out, by careful investigations at the Hôpital Cochin, in Paris, a peculiar kind of hypertrophic cirrhosis of the liver, presenting the following characters—extra-lobular and extensive cirrhosis without any tendency to retraction of the conjunctive tissue of new formation; and sometimes intra-lobular cirrhosis—abnormal development and chronic catarrh of the biliary ducts.

SYMPTOMATICALLY.—It is characterized by chronic jaundice depending on the obliterations of the biliary canaliculi, and by a considerable hypertrophy of the liver without ascites, or the abnormal enlargement of the subcutaneous veins of the abdomen which is observed in ordinary cases of cirrhosis. The affection may last a long time, but sometimes ends in the acute malady called

"severe icterus." No particular etiology has been made out, nor is there anything reliable respecting treatment.—(*Lancet*, August, 1876.)

CAUSES.—There are perhaps various conditions capable of producing, or at all events may help to produce, the different forms of adhesive inflammation of the substance of the liver now under consideration; but the most common, and indeed the most powerful cause in this country is the habitual indulgence in "ardent spirits." These forms of disease are in consequence most frequently seen in London and other large towns chiefly among the poorer classes, many of whom spend the greater portion of their earnings in, and when that fails even sell or pledge their bed for the purchase of gin, and for this reason the granular or hob-nailed liver known to the French as cirrhosis, has been familiarly termed in this country the "gin-drinker's" liver—a disease commonly met with at the various London hospitals. The influence of spirit drinking in causing this disease has likewise been observed in France; and in the many cases published by the eminent Andral, all are traced to spirit-drinking. He imagined that the spirit produced irritation of the mucus membrane of the stomach and duodenum, and spread through continuity of tissue to the gall-ducts, and from thence into the substance of the liver, or, that the alcohol being absorbed into the veins may act directly on the liver.

The latter exposition is undoubtedly the correct one; as the spirit when absorbed by the blood-vessels, is carried at once to the liver, and there exerts an immediate and deleterious action on its tissues. In proof of this observation some interesting experiments on the

poisonous effects of alcohol were, a few years ago, performed by Dr. Percy, of Birmingham, who found that in dogs poisoned by alcohol, he could recover that spirit from the blood, the brain, the spleen, and other organs, but in far the greatest quantity from the liver. The inflammation of the "areolar tissue" in the portal canal. "Glisson's capsule" is most probably owing to the diffusion of alcohol through it from the portal veins; and bearing in mind the volatile principle of alcohol, we can readily conceive how quickly and effectually it permeates animal membranes and tissues. These remarkable properties of alcohol also explain the fact observed by the generality of pathologists, that in cirrhosis, or the gin-drinker's liver, the *whole* of the liver is uniformly changed in structure; but if globules of mercury or globules of pus find their way into the veins that feed the *vena porta* they become arrested at some particular points in the lobules of the liver, and excite at each of such points circumscribed irritation, followed by inflammation, and ultimately by abscess, while the whole of the remaining liver continues healthy, but it is quite different with alcohol, which being of a volatile nature, mixing freely with water, becomes equally diffused throughout the whole mass of the portal blood flowing through the liver, and the inflammation it excites, "slow though it may be," involves, as a consequence, the entire organ, and its ultimate destruction.

ETIOLOGICALLY.—The form of degeneration of the liver herein described has been pretty generally attributed to a "chronic inflammation of the gland," and the chief cause to the abuse of "ardent spirits,"—hence the English term "gin-drinker's liver." There can, however,

be no doubt that a granulated condition of the liver may arise in other ways, and from divers other causes; but anato-pathologically there is only a superficial resemblance between such granulations and those of true cirrhosis. CLINICALLY granulations of this type are to be met with under the five following circumstances :—

1. THE FATTY LIVER.—In this disease, segments of the gland in which the cells are greatly distended with fat, project in the form of yellow rounded granulations, the size of a globule, or a pin's head. In all cases of this kind examined by Frerichs and others, the prominences were formed by the portal zones of the lobules, and after injection, twigs of the portal vein and hepatic artery might be seen on the top of the granulations whilst the hepatic vein lay in the depressions. In true cirrhosis, however, it will be observed that the relation of the parts is precisely the reverse. The hypertrophy of the connective areolar tissue; the development of new vascular channels; and the great firmness and tenacity of the whole gland, which is never absent in a case of genuine cirrhosis, are invariably absent in an adiposed liver, and which is also exempt from any prominent derangements of the circulation.

2. THE HYPERÆMIC LIVER.—This form of hepatic derangement arises from an obstructed circulation in heart and lung affections. In the first stage there is considerable enlargement of the gland (hypertrophy), arising from a redundancy of blood (hyperæmia), but after a time this enlargement is followed by an opposite condition—atrophy. Here also the liver becomes firm, leathery, and finely "granular," which has led many able practitioners to confound it with true cirrhosis.

These granulations, however, are formed in quite a different manner—viz., the roots of the hepatic veins are enlarged as far as their capillary origin, and cause the surrounding cells to disappear. In this way the parts corresponding to the hepatic veins sink down, whilst those occupied by the portal vein project in fine granulations. At first the wasting of the organ is confined to the circumference of the enlarged capillaries, but, after a time it extends to the large branches, and as a consequence produces extensive depressions, and new connective tissue is developed around the vessels, imparting to the organ a certain amount of firmness. This form of atrophy of the liver is frequently traced to hypertrophy and valvular disease of the heart.

3. PYLE-PHLEBITIC ATROPHY.—A wasting of the liver will sometimes follow an obliteration of the fine branches of the portal vein—the result of “adhesive phlebitis.” On tracing the branches of the portal vein into the interior of the gland, we arrive at blind extremities, which are surrounded by a firm shrivelled tissue, the remaining portion of parenchyma being left unchanged, depressions are thus formed, which give to the liver a lobulated, and at other times a coarse granulated appearance not unlike that of cirrhosis. This condition however differs materially from the latter disease—viz., by its greater size, its less regular form, the flatter character of its projections, by the total absence of the bands of connective tissue in its interior, and by there being no history of SPIRIT DRINKING.

4. PERI-HEPATITIC ATROPHY.—There is a form of wasting of the liver which follows repeated attacks of inflammation or its capsule (peri-hepatitis). In such

cases the capsule becomes thickened, and is often connected to surrounding organs by firm bands of fibrous tissue; similar bands also pass into the interior of the organ, which on pressure presents a dense, smooth, uniform surface, with the outlines of the "lobules" more or less obliterated. This condition of liver is recognised by some writers as "simple induration," and is not unfrequently met with in patients suffering from the secondary and tertiary forms of typhilis—valvular disease of the heart of long standing, inflammation of the pleura, ulceration of the stomach and duodenum, and various derangements of the secreting tissues of the liver itself. In such cases the inflammation is sent to the capsule of the liver through the diaphragm, along the coronary ligament, or from the subjacent glandular structures. When the disease has a syphilitic origin the surface of the contracted liver is marked by cicatrices, or deep and irregular fissures. Under other circumstances the surface is smooth, and totally devoid of those granulations or hobnailed protuberances which, so characteristically mark true cirrhosis.

5. The chronic atrophy of Frerichs—or the red atrophy of Rokitansky.—This form of atrophy is distinguished from all others by its dark-brown or bluish red colour: the substance of the organ is gorged with blood, and presents a spongy, elastic consistence; there is an absence of granulation, and a section gives an appearance of a perfectly homogeneous texture: the secreting cells are smaller than natural, and loaded with brown pigment granules. The atrophy of the organ is general, though its thickness preponderates over the dimensions. The other

most important anatomical phase connected with this form is the destruction of the ramifications of the portal vein, the branches of which terminate in blind, club-shaped extremities.

The disease is chronic, and is invariably accompanied by general torpor of the abdominal ganglia, and venous plethora of the abdominal viscera; cancerous ulcerations of the stomach and intestines; and by the formation of brownish black or greenish black tarry bile, and faeces of a similar composition. By itself this form of atrophy rarely proves fatal, though death may ensue from the general marasmus brought on by the prolonged congestion of the portal system, or from repeated attacks of intermittent or remittent fever.

TREATMENT.

The leading indications for the treatment of this, the chronic form of inflammation of the liver (cirrhosis) must vary according to the state of the disease, and the consequences to which it gives rise. But from the difficulty of its early recognition, or from the patient not seeking early the advice of his medical adviser, an opportunity is not often afforded of treating the complaint in its incipient stage; and from what has been already said of the nature of cirrhosis, it is quite clear that it is only in the early stage that we can successfully grapple with the complaint, and so benefit the patient. During this, "the early stage," while the inflammation is active, and the effused lymph in a liquid condition, our *Materia Medica* undoubtedly contains remedies which possess the power of checking the further effusion of lymph,

preventing its organization, and promoting its removal by absorption. Much, of course, will depend upon the patient himself: he must, with a fixed determination and stoical bravery, RESIST, "once for all," the fascinations of his daily dram; he must place implicit confidence in his doctor, and carry out with religious exactitude his medical, dietetic, and hygienic rules. But when that treacherous element—the fibrine—has been thrown out, and when it has become organized and becomes a part and parcel of the living body, incapable of removal, and is already by its puckering and contracting causing impediment to the natural flow of the portal blood, and materially impeding the natural secretion of bile, then the curative power of drugs will avail him not; the medical treatment henceforth can only be palliative. It therefore becomes of the greatest possible importance that the disease be, if possible, detected in its very earliest stage, in order to counteract such grave and irremediable effects. But, as we have clearly seen, this is not without serious difficulties, as the symptoms then are but few and often obscure, and it is only by considering the previous habits of the patient that we are led to see in them the early tokens of an organic, and but too often intractable disease. In the person of a regular spirit-drinker, who has a coated tongue, loathes his food, has nausea, with occasional rejection of his meals; and who complains of slight fever, with pain and tenderness in the region of the liver,—such a case, it "need hardly be said," should command the immediate attention and the most judicious and skilful treatment of the physician.

ALLOPATHICALLY.—At the commencement of the

disease cupping, leeching, bleeding from the arm, blistering and saline purgatives constitute the chief treatment as laid down by Budd. When the feverish symptoms have subsided, and the liver continues large; then mercury, both internally and by inunction, followed by the iodide of potassium internally, and the iodine ointment rubbed into the side. When dropsy sets in, Hydragogues, says the same author, have but little power in reducing the ascites, and may do more harm than good. Frerichs lays down a more elaborate code of treatment, but whether successfully carried out or not I am unable to say. In the inflammatory stage he advises leeches to be applied to the hepatic region, and to the anus, mercurial ointment to be rubbed in, and warm fomentations. Internally saline laxatives in decoction of tamarinds, or grass-root, the "Triticum repens," which contains sugar and free oxalic acid, calomel, rhubarb, saline and solvent extracts. As stomachics he recommends the tinctures of rhubarb, orange peel, wormwood, quassia, and the Calamus aromaticus; for nausea and vomiting hydrocyanic acid, Belladonna, Morphia, and Bismuth; for haemorrhage from the stomach, tannin, acetate of lead, and nitrate of silver; for constipation, rhubarb, aloes, and ox-gall; for diarrhoea, calumba, cascarilla, logwood, Nux Vom. and tannin; and for ascites, digitalis, squills, juniper, Ononis spinosa and levisticum, and saline diuretics.

HOMOEOPATHICALLY.—Having now disposed of the history, anatomy, symptoms, pathology, causes (its allied disorders), and its allopathic treatment, we now come to the homœopathic and hygienic treatment, and there is but little doubt that much may be done with these curative and palliative agents in the different

stages of the disease. As a preliminary to such treatment, the entire DISUSE of all "alcoholic drinks, coffee, curry, pepper, mustard, highly seasoned dishes, and all other condiments of a like kind, which tend to irritate the liver," must be strictly enforced. The pain, tenderness, and swelling of the liver should be combated by *Aconite*, either alone or in alternation with the *Bryonia alba*, and continued for some days, or until a marked amelioration in the symptoms takes place. The region of the liver should be covered with linseed meal poultices, over the surface of which may be sprinkled the tincture of *Aconite* or *Belladonna*; or, better still, a wet compress, sufficiently large to cover both the right and left lobes of the liver, and kept on for some days, till pain, sensitiveness, and swelling disappear, or until a thick eruption of pustules crop out on the surface of the skin. A Turkish bath should be taken at least three times a week, and strict injunctions should be given that the whole of the hypochondriac, splenic, and epigastric regions be well shampooed. The functions of the stomach should be regulated by *Nux vomica*, the *Ignatia* or *Pulsatilla*. I, however, know of no medicine which more quickly cleanses a coated tongue, or corrects a disordered stomach, than the *strychnos nux vomica*, administered according to the following formula:—Tinct. *Nux Vom.* 12 drops; distilled water a tumbler full: well mix. A table-spoonful to be taken every one or two hours.

The functions of the bowels should be regulated, and indeed, even kept slightly relaxed, by means of the *podophyllum peltatum*, *nux vomica*, and the saline waters of Cheltenham, Leamington, or the Llandrindod in Radnorshire; or, when circumstances may permit, the

waters of Eger, Karlsbad, Vichy, or Vals. If there exists during this stage nausea, with occasionally vomiting and slight jaundice, an occasional intermediate dose of ipecacuanha will generally suffice to remove such symptoms. In cases of cirrhosis, where all pain and uneasiness have subsided, but there still remains enlargement of the organ, the mercurius solubilis will prove a useful remedy. We do sometimes meet with cases where constitutional syphilis appears to be the primary cause of cirrhosis ; for such a cause the preparations of mercury and iodine should be selected, namely, the merc. sol., merc. vivus, merc. corr., merc. proto-iodide, the merc. biniodide, the iodide of potassium, or the iodide of iron, with the occasional inunction of the two latter medicines, and the use of the waters of Kreuznach, Carlsbad, or Friedrichshall.

The diet must consist of mild, simple articles of nourishment, which in strong persons, with a tendency to plethora, should be mainly of a vegetable nature, such as fruits, lightly boiled eggs, milk, light pulse, and suitable farinaceous substances, in the form of puddings or porridge ; but in the debilitated a careful selection should be made of the most easily digested and least stimulating animal and vegetable foods, such as tripe and pig's feet (soused), lamb, mutton, and boiled fowl, with plain boiled rice, a sago or tapioca pudding, with no more stimulating beverages than a glass of spring, seltzer, or the Apollinaris water.

HYGIENICALLY.—There must be total rest from all mental and bodily labour, with daily walks, and plenty of fresh air.

In the second stage, we have to encounter a far more

formidable and irremediable group of symptoms ; in this stage the degeneration of the hepatic cells is far advanced ; the secreting and excreting functions of the organ are in a great measure destroyed ; the floodgates are closed, the canals blocked up, and the current of the circulation is diverted through other and new channels, followed by ascites and anasarca, haemorrhage from the nose, stomach, and bowels, and general emaciation—a group of symptoms as painful and harassing to the patient, as they are unyielding to the action of medicine, and the best efforts of the anxious physician. It is at this stage, unfortunately for the patient, that the physician is but too often consulted for the first time when a radical cure is in the majority of cases beyond the confines of medicine, and the power of man, for there does not exist a drug in the *materia medica* of any nation whose records extend back to nearly two thousand years, which is capable of removing the morbid deposit of an organized tissue, or restoring the lost functions of a cirrhotic liver ; we do, however, possess remedies of great value, capable of checking the peri-hepatitis which supervenes from time to time ; of removing the dropsical effusions, of checking the haemorrhages, prolonging life, and making that life bearable ; and when the final crisis comes, of smoothing the rugged path of life gently and softly into the grave.

THE MINERAL ACIDS.—The nitro-hydrochloric and nitric acid are both valuable remedies in this stage of the disease ; they should be administered both internally, and externally in the form of baths, and continued for some weeks, with an occasional dose of Aconite, when any feverish symptoms crop up, and Nux Vomica to correct stomach derangement and constipation ; and

Pepsine to promote digestion. Should the bowels not yield kindly to the action of *Nux Vom.*, and the patient complain of stitches in the liver, costiveness, with frequent straining, and the expulsion of hard ball-like faeces, with tympanitic distention of the abdomen, colocynth may prove of great advantage, or sulphur.

Bleeding from the nose is frequently checked by either *Acon.*, *Bell.*, *Arnica*, *Ipec.*, *Rhus*, or *Sabina*.

Bleeding from the stomach, by *Acon.*, *Arnica*, *Ferr.*, *Gallic Acid*; cold drinks, ice, and a bladder of ice to the abdomen.

Bleeding from the bowels, by *Hamamelis*, the injection of *Gallic* or *Tannic Acid*, or *Sulphur*, which in some cases is a potent remedy.

Ascites and anasarca, which are constant symptoms in the last stage of cirrhosis, will often yield for a time to *Ars.*, *China*, *Copaiba*, *Digitalis*, or *Elaterium*; and more particularly to a compound of my own, the *Ferri ammo. citratis c. Strychniaæ, c. Digitalis*. In a case of extensive hypertrophy of the liver, with hypertrophy and dilatation of the right ventricle of the heart, dilatation of the auriculo ventricular openings, coupled with ascites, hydrothorax, and anasarca of the upper and lower extremities; this motley group of symptoms were entirely dispersed on three consecutive occasions; the contour of the liver became considerably diminished, the heart's action considerably subdued, its size lessened, and life prolonged for nearly twelve months, by this preparation alone. This case is well known to Mr. Spencer Wells, and Dr. William Bell, late of Mayfair, and now of Eastbourne.

As the disease advances, the chief indications for treatment are always to assist, as far as possible, the nutrition of the body and the formation of blood, and

to remove every cause of exhaustion. A diet carefully selected in reference to its digestibility and nutritious qualities is the first requisite. Fresh milk, if easily digested, forms a valuable item in this respect; concentrated beef tea, made of equal parts of beef, mutton, and veal (which I have designated the "triple alliance"), thickened with the finest Scotch oatmeal or Indian corn, both of which are rich in nitrogenous matter and fat, forms another; well-made cocoa diluted with half its weight of fresh milk; stewed venison; stewed oysters; stewed rump-steak, or a loin chop; eels stewed in milk, to which may be added a little cream; stewed chicken and rice; macaroni boiled in milk; rice, arrowroot, or vermicelli blancmange; and "nourishing soups," all of which are very nourishing, non-stimulating, and digestible little dishes. To make nourishing soup:—"stew two ounces of the best well-washed pearl sago in a pint of water till it is quite tender and very thick, then mix it with half a pint of good boiling cream, and the yolks of two or three fresh eggs. Blend the whole carefully with one quart of essence of beef, or the "triple alliance." The essence must first be heated separately, and mixed while both mixtures are hot. A little of this may be warmed up when required. If it be absolutely necessary at this stage to prescribe stimulants, they should be selected from the purest and mildest kinds, and in very moderate quantity, with a glass of sound Burgundy, Hock, or the Hungarian Somlau, or Edænburgh.

The acute gastro-enteric catarrh, which is generally accompanied by low typhoid symptoms, a frequent phase of the disease in its last stage, should be treated by the mineral acids, *China*, *Zincum*, and *Arsenicum*, and all other complications by their appropriate remedies.

CHAPTER VIII.

INFLAMMATION OF THE LIVER TERMINATING IN PYÆMIC
AND TROPICAL ABSCESS.

DEFINITION.—Inflammation of the liver may be defined as pain, tenderness, and fulness in the region of the liver or stomach, the pain often extending to the right shoulder-blade and adjacent parts. Inflammatory fever, a furred tongue, frequent cough, and bilious vomiting; a costive or irregular condition of the bowels; scanty and high-coloured urine, with a heavy deposit of lithates; slight and sometimes confirmed jaundice.

Inflammation of the liver, in this country, generally comes on insidiously in some one of the functional disorders just mentioned. In the tropics the premonitory symptoms are more prominent, and are frequently preceded by increased secretion of bile, fever, diarrhoea, or slight dysentery, which often attracts the chief notice and misleads the physician.

Inflammation of the liver may be limited to the following regions of the organ, viz.

1. To its superior convex surface.
2. To its inferior concave surface.
3. To its internal structure.
4. To its right or to its left lobe.

Let us briefly review the symptoms of each in the order given.

- A. The symptoms appertaining to the convex surface

bear a strong resemblance to pleurisy and pneumonia. There is cough, oppression, dyspnœa, pain in course of the diaphragm, much increased on inspiration; the pulse is quick and hard; the tongue is dry; and there is thirst, heat and dryness of the skin. The stools are disordered, at first scanty, dry, and infrequent, at other times relaxed and more or less tinged with bile, and the urine is scanty, high-coloured and charged with lithates.

B. When the concave and posterior surface of the liver is inflamed there are marked functional derangements of stomach, nausea and vomiting, particularly after food; thirst, great anxiety with urgent pain in the epigastrium and back, which often extends to the right shoulder and neck. The pulse varies from an irritable, quick, small, contracted, to a hard one. There is often a sense of fluttering with heavy dragging pains in the pit of the stomach; great anxiety, frequent sighing, and, in the advanced stage, hiccup. The usual posture of the patient is on the back or right side.

C. The leading symptoms of inflammation of the substance of the liver are marked early by chills, rigors, irregular diarrhoea, uneasiness, weight, and oppression in the right hypochondrium and pit of the stomach, extending to the ensiform cartilage and diaphragm to the back and shoulder-blades, increased on pressure made beneath the ribs and over the stomach, or a deep inspiration. The pulse at this stage is hardly affected, but as the inflammatory action progresses it becomes quick, particularly towards night; the pulse, however, varies, as we sometimes find it slow, oppressed, irregular, and even intermittent; the countenance is pale, sallow, and anxious; the spirits depressed; the tongue is white

or yellow, more or less coated with a slimy deposit, with an unpleasant taste in the mouth. There is nausea, at times vomiting and loss of appetite; the bowels are irregular, at times costive, at other times diarrhoeic, the urine is scanty, high-coloured, and heavily charged with lithates; there is more or less night fever and general restlessness.

As the disease progresses, the pulse becomes quicker, fuller, and more irritable as night approaches; oppressed and embarrassed during the morning and day. The uneasiness in the liver becomes augmented; complaints are made of a heavy dragging pain in the organ, increased on motion or turning in bed; there is a short suppressed cough, great oppression, dyspnoea, and a catch on full inspiration. Percussion reveals great tumefaction of the organ as evinced by the area of dulness which extends below the ribs, and high into the thorax. The stools become watery, frequent, and scanty; the colour is dark, sometimes charged with blood and attended with a distressing tenesmus; the urine becomes very scanty, and thickly charged with a lateritious or pinky sediment, which scalds the patient while passing it; and if the flow of bile is obstructed, there is found in the urine a dark brown flocky sediment.

Such, then, are the ordinary steps taken by inflammation of the substance of the liver, as observed both in cold and warm climates, and which continue with certain variations till removed by treatment, or glide into suppuration, &c.

TERMINATION.—Acute inflammation of the substance of the liver may terminate in various ways.

1. It may terminate in a rapid and complete recovery,

which is marked by the subsidence of all pain, uneasiness, and fever ; by the stools and urine assuming their normal standard ; by the reduction in the size of the liver ; by a healthy tone in the chest and stomach ; by free perspirations ; a clean tongue, keen appetite, and by a free escape of blood from the haemorrhoidal veins ; a bilious diarrhoea, and a copious sediment in the urine.

2. It may terminate in chronic inflammation, which by judicious treatment may return to its original normal condition.

3. It may pass into the sub-acute state.

4. It may occasion enlargement and other organic lesions.

5. It may implicate the biliary ducts, gall-bladder, and cause permanent jaundice.

6. It may give rise to various complications of neighbouring organs ; and

7. It may terminate in one or more abscesses.

There are two kinds of abscesses found in the liver, the result of inflammation,—the metastatic or pyæmic, and the tropical abscess.

The pyæmic abscesses are peculiar to Europe ; the tropical abscess to the East Indies and other hot regions : the pyæmic abscesses are small and numerous ; the tropical abscess stands alone. How comes this ? let us investigate their respective CAUSES.

The diagnosis of pyæmic abscesses will be greatly simplified by keeping in view the circumstances under which the disease usually occurs. The mode of formation of these abscesses is well illustrated by experiments made more than half a century ago by Dr. Sanderson, and described by him in his admirable

work on the structure and diseases of the liver. He injected two drachms of quicksilver into the crural vein of a dog : at the end of twenty-four hours the animal became feverish ; at the end of two or three days he had cough and difficulty in breathing, which continued till his death. On a post-mortem examination, performed by the doctor, he found the lungs studded with small hard tubercles and small circumscribed abscesses, and in the centre of each was found a globule of the quicksilver. Here the globules of mercury, like the globules of pus in the diseases which I shall immediately refer to as CAUSES, become arrested in the capillary vessels of the lungs, and often in the liver, and each globule, acting by mere mechanical irritation, excites inflammation and abscess.

The chief causes attributed to pyæmic abscesses in the liver have been traced—

To ulceration of the stomach and intestines ; to ulceration of the gall-bladder and biliary ducts ; to dysentery, fissures in the anus, and internal fistulæ ; to operations for fistula in ano ; to inflammation of the portal vein following cauterization of the rectum for piles, fissures, or polypi ; to the operation for strangulated hernia, and to capital operations of the lower extremities. All these may be set down as primary causes, from which it may be inferred that in the progress of ulceration, phlebitis of the capillary veins of the bowels occurs, and that the matter thus formed in these veins passes with the blood into the portal circulation, where (like the quicksilver) it irritates and inflames the minute ramifications of the portal vessels and minute structure of the liver, giving

rise to purulent infiltration, and small abscesses in various parts of the organ, similar to those of phlebitis in other regions of the body; but in this instance always occurring in the liver, and there only, because the pus globules pass directly from their respective sources into the portal circulation, and wend their way slowly throughout the whole of the minute structures of that organ.

The same thing may occur between the secondary abscesses from phlebitis, and secondary masses of cancer. A cancer of the breast, for instance, may be the source of cancerous tumours in the lungs or liver, just as an inflamed vein in the arm may be the source of abscesses in those parts: those abscesses and secondary cancerous masses will be scattered in the same manner, and immediately surrounded by healthy lung or liver substance. The liver and lungs are the organs in which secondary cancerous tumours, as well as the abscesses from phlebitis, are most frequently met with, this is accounted for by the quantity of blood which naturally flows through these organs. The cancerous tumours and the abscesses have in each organ the same form and locality; and in the lungs both have a great predilection for the surface.

TROPICAL ABSCESS.—The pathology of tropical abscess of the liver, says Murchison, has been a subject of considerable discussion, and one on which opinions are still divided. The frequent co-existence in the tropics of abscess of the liver with dysentery, has naturally led pathologists to connect these two lesions; Annesley and others maintaining that the dysentery is the result of the hepatitis, and some that the hepatitis is the result of dysentery; while a third class, like

Dr. Abercrombie, maintain that the frequent occurrence of the two maladies is merely the result of accident. The doctrine, which is most generally accepted at the present day is that propounded some twenty years ago by Dr. George Budd, of London—that hepatic inflammation is the result of purulent absorption from the ulcerated colon—the result of dysentery; in fact, the pathology of tropical abscess appeared to him to be identical with the pyæmic abscesses so common in this country. Morchhead, however, maintains—with whom Frerichs, of Berlin, agrees—that the general cachexia induced by a long residence in the tropics is the chief cause of hepatic disease, and attributes the immediate exciting cause to a “chill.” This view, says Frerichs, is more in harmony with the facts in the case of those abscesses of the liver which accompany tropical dysentery.

The following statistics, however, go far to prove that dysentery has much to do with the tropical hepatic abscess.

Of 29 cases collected by Annesley in India, 21 had dysenteric ulceration of the large intestine.

Of 25 cases collected by Haspel in Algeria, 13 were similarly affected.

Of 17 cases collected by Budd, chiefly among sailors on board the old Dreadnought Hospital, in the Thames, 10 had ulceration of the large intestine. To counterbalance these statistics as regards the frequency of dysentery in connection with tropical abscess, we find that out of 300 cases collected by Waring in India, dysentery preceded hepatitis in only 82 cases, or 27.3 per cent. The most conclusive cases, however, are those in which the patients have died of hepatic abscess and no sign of dysenteric ulceration found after death.

Morehead records 17 cases of abscess without a single sign of intestinal ulceration ; and out of 204 cases of hepatic abscess collected by Waring, not a sign of ulceration, cicatrices, or abrasions was found in the intestines of 51 cases—being exactly one-fourth. It is, therefore, clear from those statistics that we must look for other causes than dysentery as productive of tropical abscess.

SYMPTOMATOLOGY.—It would be extremely difficult, if not impossible, to lay down a clinical history of hepatic abscess, which would act as an undeviating guide in the diagnosis of all cases ; inasmuch as the complex and ever-varying train of symptoms presents so many changes, depending on the topographical area of the inflammatory deposit and its concomitant morbid processes. It is also worthy of note that medical history records many cases of suppurative inflammation in the liver, the existence of which was not known or even suspected during life ; and yet post-mortems have brought to light abscesses of a prodigious size. Budd records the case of a Lascar, age 62, admitted into the *Dreadnought*, October 2, 1839, seemingly only suffering from catarrh and general emphysema, and only complained of general weakness, night sweats, and hectic fever : he died on the 12th November following. A post-mortem brought to light an abscess which contained over a pint of pus, with traces of dysenteric ulcers in the intestines. Andral gives the history of a young man, who, after a long ride on horseback, fell ill with feverish symptoms ; on the fourth day he had rigors, headache, a white tongue, loss of appetite, and obstinate constipation ; on the twelfth day he became delirious, and on

the seventeenth he died. A post-mortem found all the organs apparently healthy; but an accidental puncture of the liver with the scalpel, laid open an abscess the size of an orange, filled with yellowish white pus destitute of odour. Inman, of Liverpool, gives us the case of a woman, aged 45, who died in the Liverpool Infirmary, in whose liver was found three abscesses containing about 20 ounces of matter. Frerichs gives two cases of large abscesses in the liver, the existence of which was not indicated during life by any local or constitutional symptoms. One was that of a man aet. 34, who had been treated for chronic inflammation of the kidneys, and exudation into the left pleural cavity. A post-mortem brought to light an abscess in the right lobe of the liver, $5\frac{1}{4}$ inches in diameter. The second case occurred in an aged man, whose autopsy revealed a cavity in the right lobe of the liver the size of a goose's egg, filled with greenish yellow pus.

Abscesses of the liver sometimes attain an extraordinary size. In one instance Budd estimated the quantity at two quarts. Annesly in one case found ninety ounces; Inman, of Liverpool, another which contained the enormous quantity of 13 pints. In September, 1870, I met with a very interesting case of abscess of the liver, which, from its exact measurement, must have contained at least two quarts of matter, and which forms the subject of the following notes:—T. J., aet. 44, a tall, well-built man, of a somewhat swarthy complexion, consulted me on September 6, 1870.

HISTORY.—He had resided on the southern slopes of the South American continent for some years—Chili—as manager to a copper ore mine. He was a free

liver and large eater. On first landing in that country he was smitten with yellow-fever. A few years after this he had dysentery, which continued to harass him for many months. He at last became unfitted for business, and was ordered home invalided. On his arrival in London he consulted one of the "head physicians" to the "London Homœopathic Hospital," who treated him for *Dyspepsia*. Finding no relief he consulted me on the above date.

Here are the symptoms, as roughly sketched at the time :—There is a darkish hue of the countenance; he complains of great debility, and is unable to walk any distance; there is considerable dyspnoea; talking fatigues him; and there is a peculiar anxiety depicted in the face. The tongue is thickly coated with a yellowish brown slimy deposit; he is much troubled with flatus; he eats but little at a time, as it creates nausea; the pulse is quick, and jerks; the bowels are tolerably regular—in colour of a dark brown. The urine is scanty, high-coloured, and deposits a heavy pinky sediment. There are signs of anasarca round the ankles; he sweats freely, and the sleep is restless and disturbed. A careful examination of the chest and abdomen revealed the following :—The chest is well developed, and has no abnormality beyond the dyspnoea, which was distressing. The right hypochondriac region is greatly distended; the skin is tense and shining; percussion marks extensive dulness, and pain which extends through to the interscapular region; and palpation yields distinct fluctuation. To take *Acon.* and *Ars.* at stated intervals.

September 8.—There is no change beyond an increased pain over the surface of the liver, which I look upon as peritoneal. To take *Bryonia* and *Aconite* in alternation.

September 9.—He is not so well: there is increased dyspncea, and the pain now shoots through to the back; fluctuation is more perceptible. To have warm fomentations applied to the seat of pain; and to take Ars. and Bry. in alternation.

From this date to the 15th there has been no special improvement; the pain continues, the tumefaction and dyspnœa increase; the nights become more restless; he sleeps but little, and that by short snatches; the tongue remains coated. To continue the fomentations and to take *Nux Vom.* and *Ars.*

September 16.—He feels better; there is less tension in the hypochondria, and less dyspnœa; the B. have been moved copiously, and the U. copious and fairly normal. "All good or bad signs." To continue the *Nux V.* and *Ars.*

From the 17th to the 20th there has been a general and continued relapse of most of the symptoms; he is more restless; the dyspnœa is more urgent; the region of the liver is more distended; the skin is tense and glassy; he looks haggard, anxious, and careworn; the stomach is irritable, and he rejects his food; the tongue continues coated, and the pulse is small and irritable. To take *Hep. S.* and *Ars.*

On the following morning, at about 3 a.m., he felt something burst into the stomach, and he vomited nearly a pint of pus, with marked relief to the more urgent and distressing symptoms. From this date to the 26th he continued to improve more or less. All urgent symptoms have subsided; he sleeps tolerably well; the tongue is getting clean; he takes his food with a fair relish; his countenance looks calm; his B. are regular, his U. is copious, and he expectorates pus more or less daily. To take *Ars.*

September 27.—Not so well; he has rigors; his pulse is quick; he has dyspnœa; the anxious countenance has returned; the tongue is brown; he is thirsty and trembles. To take *Bell.* and *Ars.*

September 30.—He is not so well; his countenance looks more anxious; his features are pinched; the pulse runs; the expectoration is offensive, and tinged with blood; the dyspnœa is distressing; the B. are relaxed, and sleep restless. To take *Ars.* and *Carbo Veg.*

October 1 and 2.—About the same. To continue *Ars.* and *Carbo. Veg.*

October 3 and 4.—There is a slight improvement; the expectoration is less offensive; the pulse is softer. To cont. med.

October 5, morning.—Is not so well; passed a restless night; had delirium; the tongue is coated and dry; dyspnœa is distressing; the pulse is quick and jerking. Cont. med.

Evening.—The dyspnœa continues; has a distressing cough; the pulse is quick, and intermits; is thirsty; the tongue is dry and brown; the faeces are dark and scanty.

October 6; 10 a.m.—He passed a very restless night. Was seen by Mr. Yeldham, who diagnosed pleurisy and pneumonia, and gave a favourable prognosis. To give *Bry.* and *Ars.*

October 7.—He passed a very restless night; no sleep; delirium, and distressing dyspnœa; B. moved freely; faeces dark and offensive; cough troublesome. *Ars.* and *Carb. Veg.*

October 8; 1 p.m.—Passed a very restless night; is propped up in bed; is delirious; death is at hand; his countenance is anxious; has a supplicating look; his

features are pinched; his eyes sink and look glassy ; his tongue is brown and dry ; the breathing is oppressed with heaving gasps, the sputa is scanty and offensive ; the pulse is thready, rapid, and intermittent; he swallows with difficulty ; the lower jaw drops, and a cold clammy sweat bedews his brow. In this condition he was again seen by Mr. Yeldham at 10 a.m., who gave the afflicted relatives hopes of recovery.

At 3 p.m. he was no more, and his spirit winged its flight to another sphere.

A post-mortem examination which was performed in the presence of, and with the assistance of Dr. Vaughan Hughes, twenty-four hours after death, gave us the following results :—

The liver was considerably hypertrophied and melanotic ; in fact, it presented a black, charred, brittle mass, which crumbled under the slightest pressure. In the centre of the right lobe was found a cavity full six inches long, and sufficiently capacious to hold a pint pot ; at its anterior extremity was a perforation about the circumference of a shilling, which opened into the oblique portion of the duodenum, bordering on the pyloric extremity of the stomach ; the completion of this canal was announced on the morning of the 20th September by the upheaving of nearly one pint of pus, which continued more or less till three or four days before death. At the posterior surface of the same cavity was another opening, the circumference of a crown piece, which perforated the diaphragm and pleura, and broke down the right lung into a thousand shreds, which were found floating in about four or five pints of grumous fluid. The spleen, like the liver, was an hypertrophied black,

carbonized mass, brittle and easily torn. The heart was flabby and in a state of hypertrophy; the left lung healthy. The stomach was of enormous size, and extended from the left to the right hypochondriac region.

The symptoms of hepatic abscess resolve themselves under the two following heads, viz., those that indicate inflammatory action, and those that indicate suppuration.

The first group is signalized by pain in the right hypochondrium, increased by pressure, by a deep inspiration, by coughing, or by lying on the left side; there is a dry hacking cough, difficulty of breathing, with shooting pains in the chest, somewhat resembling pleurisy, and which extends to the shoulder of the affected side; there is a yellow tinge of the conjunctiva, and sometimes jaundice; the urine is high-coloured, scanty, and throws down a copious sediment of lithates, or lithic acid; there is derangement of the stomach, vomiting, hiccup, costiveness, or diarrhoea, which is dysenteric, and there is more or less fever, which assumes an intermittent type. In some instances there is a deficiency of bile in the intestines, in which case the faeces are of a clay colour, in other instances there is a superabundance, which is then rejected by vomiting and by stool. When the inflammation glides into suppuration, which usually occurs at the end of eight or twelve days, unless it previously terminates in resolution, the symptoms are characterized by chills and distinct rigors, followed by well-marked hectic fever; and stomach derangement; the pain, which is dull or acute in the inflammatory stage, is now changed to a *distinct throbbing*, which may be considered as pathognomonic of abscess; there is rigid-

ity of the abdominal muscles of the right side, particularly the rectus, which becomes tense and band-like; there is a feeling of weight about the liver, emaciation, prostration diarrhoea, or dysentery. The liver is more or less enlarged, according to the quantity of matter contained in the sack ; it is no longer uniform, the normal outline of the area of hepatic dulness is altered, and it may bulge upwards, downwards, forwards, or outwards, according to the direction the abscess takes in each case. The contour of this bulging tumour is tense, rounded, and smooth ; the skin shines, and fluctuation can usually be detected in the tumour, which will be more or less prominently felt according to the distance of the abscess from the surface.

Abscess of the liver is gregarious in its course of exit from the organ ; it may burst into the stomach and be emptied by vomiting. It may empty itself into the duodenum, or colon, and pass off by the bowels ; it may break through the walls of the abdomen, and escape externally ; it may open into the right kidney, and pass away with the urine ; it may perforate the diaphragm, and pleura, where it may excite suppurative pleurisy ; or it may open into the lung, and discharge itself through the bronchial tubes, as confirmed by a well-marked case of a lady who came to consult me from the fenny little town of St. Ives, Huntingdonshire. When this happens it is marked by symptoms of its own, viz., by a new set of stethoscopic signs, and by the expectoration of a dirty red or brownish matter, which comes up easily sometimes in mouthfuls, without effort on the part of the patient. In another case which I saw in consultation with my friend Dr. G. Sheppard, at Clifton,

similar symptoms presented themselves. In rare cases the central aponeurosis of the diaphragm is perforated, and the pus discharged by sinuses into the pericardium, inducing pericarditis; and in still rarer cases the hepatic abscess discharges itself into the large blood-vessels, the vena cava and vena portæ, as witnessed by Smith, Graves, and Rokitanski.

A cure of the hepatic abscess is effected after the pus has been discharged by one of the above-described methods; or it may result without this occurrence from more or less complete absorption of the pus by the cellulo-vascular membrane investing the sides of the abscess, and the hepatic peritoneal lamina forms a cicatrised, dense, shrivelled covering.

TREATMENT.

ALLOPATHICALLY.—The inflammatory stage is treated by general and local bleeding and blisters; Ant. Tart., Calomel, Iodide of Potassium, Colchicum and Digitalis, Sulphate of Soda, Taraxacum, Aloes, Gentian, and Chloride of Ammonium, Acid Tartrate of Potass, Salines, Opium, Belladonna, or Morphia.

When abscess occurs, by bark and ammonia, mineral acids, quinine and iron, opium and wine.

HOMOEOPATHICALLY.—*The Acute Stage.*—When the homœopathic physician is fortunate enough to diagnose inflammation of the liver in its early stage, he will find in *Aconite* a potent remedy. The provings and toxicological effects of this drug show most conclusively that it exercises a specific action on the functions and tissues of that organ, and causes a variety of symptoms which point to inflammation. Among these we specially note—

A painful feeling of swelling in the pit of the stomach, want of appetite, and paroxysms of dyspnoea.

Violent constriction, tightness, pressure, fulness, and weight in the hypochondriac region.

Tensive, painful swelling under the ribs, shocks, and pressure in the region of the liver, with oppression, and arrest of breathing.

Pricking pains in the liver and bowels.

Constrictive pains in the region of the gall, bladder, arresting the breathing.

The abdomen is distended and swollen as in dropsy.

These indications might be increased by a number of other symptoms from the urinary and alvine group, which would fairly complete the picture of Hepatitis. This medicine should be administered in the matrix form ; 3 or 4 drops dissolved in a tumblerful of water ; a table-spoonful to be taken every hour, gradually increasing the intervals to two or three hours. If the peritoneum becomes involved, which is known by stinging, tensive, burning pains, increased on pressure or inspiration, *Bryonia*,* should be given in alternation with the Aconite ; and great benefit will be derived from the application of a hot compress to the hypochondriac region, sprinkled over with the tincture of Aconite. These medicines should be assiduously administered at regular intervals for at least 30 to 36 hours, as well as the outward application. When the hepatitis is accompanied by gastric catarrh, a coated tongue, nausea, vomiting, distention, and tenderness of the epigastrium, *Nux. Vom.* in quarter-drop dose dissolved in filtered or distilled water will have a most beneficial effect. When dysentery is known to have preceded

the hepatitis, and is still persistent, we must endeavour to remove this cause by means of the *Merc. Cor.* $3\times$ a dose three times a day; or by *Aloes* if there is tenesmus, a burning, cutting pain in the bowels and rectum, with a rush of blood to the head, symptoms which *Aloes* cover remarkably well. For colicky pains which occasionally supervene, and where *Nux V.* fails, *Colocynth* will come to the rescue; and for inordinate bleeding per an*i* *Hamamelis* will generally suffice to check the discharge.

If, however, in defiance of the best means at hand, and the most energetic treatment, the inflammation glides into an abscess, every precaution should be taken to counteract the exhaustion which invariably follows: *Merc.*, *Ars.*, *China*, *Bell.*, or *Quina*, should be given, with a nourishing, non-stimulating diet. When the abscess is fairly formed our first object will be to endeavour to promote its dispersion by resolving its component parts. For this purpose, *Ars.*, *Bry.*, *Hep. S.*, *Lachesis*, or *Silicia*, should be selected. When, however, we are unable to effect this object, we must bide our time and carefully watch the current of events, and help nature as far as able in promoting its speedy outlet from the body through which ever channel it may select. For this purpose, *Hep. S.*, *Bell.*, *Lach.*, *Merc. S.*, and *Silicia.*, are potent remedies. Here also surgery may step in as a useful handmaid.

When the pus makes its way into the lung, and symptoms of inflammation set in, the more urgent symptoms are to be subdued by *Acon.*, *Verat.*, *Vir.*, *Phos.*, *Ac.*, and *Ars.*; and when symptoms of gangrene mark its progress, *Ars.*, *Carbo. V.*, *Chin.*, *Sec. C.*, and *Terebene* may prove useful, also *Moschus* in low triturations.

When the abscess opens into the abdominal cavity, although death is almost inevitable, yet much may be done by absolute rest in the recumbent posture; warm compresses or cataplasms, and the administration of *Ars.*, *Merc. Corr.*, *Bell. Bryon.*, with an occasional dose of *Acon.* or *Verat. Vir.*, according to the prominence of the symptoms. When the abscess takes an outward direction there should be no delay in making an artificial opening, as much danger to neighbouring structures may be thus avoided. The most simple and satisfactory operation is that recommended by Begin: he places the patient on his back, with the upper part of the body bent forward, and the thighs flexed on the abdomen; after having carefully ascertained the outline of the abscess, which the thinning of the walls and fluctuation enable us to do, an incision three inches long is made through the skin, cellular, adipose, muscular, and aponeurotic tissues. The peritoneum is then opened—like hernia—by being slit up on a grooved director to the extent of the first incision. The wound is now dressed with lint or cotton wool. After three or four days the dressing is removed, and the liver is found to have contracted firm adhesions to the margins of the wound, so that the abscess may be punctured without the slightest risk. This operation is simple, safe, successful, and easily performed. Graves, of Dublin, adopts the same plan. Budd found it unsuccessful in two cases operated on, on board the *Dreadnought*. Indian surgeons thrust up a long exploring needle into the liver when the presence of an abscess is suspected. Cures are uncertain.

Récamier and other surgeons apply to the most prominent part of the swelling caustic potash, so as to

produce a slough an inch and a half in circumference ; after the separation of the slough a stick of caustic potash is applied to the sore, and repeated as many times as may be required to open the abscess. This mode is a safe and certain one, but objections have been raised to its tediousness and painful effects. Others make an opening with a bistoury, or a trocar and canula, leaving the canula in the wound for some days to allow the pus to dribble away. When the abscesses are large the pus should be allowed to run away by instalments, extending over many days, care being taken to exclude the air.

The strength of the patient should be kept up by good nourishing diet, and the stomach and excreting organs should be carefully attended to.

CHAPTER IX.

HYPERTROPHY (ENLARGEMENT) OF THE LIVER. —HYPERTROPHIA HEPATICA—

THE various diseases of the liver have continued to remain to the present day a subject of great difficulty, in spite of the progress made the last few years, in the anatomy of this viscus. As one of the chief organs concerned in sanguification it affects the corporeal and physical character of the individual in the most varied and extensive manner within the range of physiological bounds ; and on the other hand, many of its morbid affections, which are beyond the reach of the scalpel, become intelligible only by attending to the anomalies presented in other organs.

These enlargements of the liver, are for Clinical purposes, divided into the PAINFUL and PAINLESS. Among the former is embodied hyperæmia, congestive turgor, inflammation, inflammatory swelling, congestion and statis in the capillary gall vessels, pyæmic abscesses, tropical abscess, and cancer.

Among the latter, we have the so-called amyloid liver; the nutmeg liver ; the waxy liver ; the fatty liver ; the lardaceous liver ; the hydatid tumour ; and the pure and simple “hypertrophy of the liver.”

I.—THE WAXY, LARDACEOUS, OR AMYLOID LIVER.

HISTORICALLY.—The ancient physicians had but an obscure idea of this form of disease. Stahl and Bœrhaave, described this and other forms of enlargement—as infarctions, obstructions, and engorgements. Portal sub-divided these engorgements into an albuminous, gelatinous, and a mucous variety. Andral, as hypertrophy; Budd, as scrofulous enlargement: it was, however, left to that brilliant pathologist, Carl Rokitanski, of Vienna, to give us a clear description of the essential characters of this waxy or lardaceous degeneration, and its pathogenetic relations to certain cachectic conditions of the body.

ANATOMICALLY.—Waxy degeneration of the liver commences in the glandular cells; the organ is enlarged, the increase of size taking place chiefly in a lateral direction; its edges are flattened and swollen, the peritoneal covering is smooth, shining, transparent, and tense; the structure is soft, and pits on pressure; its colour, internally and externally, is uniformly yellowish red, or light yellow, resembling that of “autumnal foliage;” the structure is pale and exsanguine, and contains a large amount of fat, as evidenced by the greasy deposit when cut with a dry warm knife, or as proved by submitting the liver to a high temperature.

This disease then consists in a deposit of fat in the substance of the liver, and to such an extent as not only to replace the true glandular structure, but to penetrate and permeate the entire organ, to the exclusion of the vascular tissue. In the early stages of this affection the various signs just alluded to are less marked.

CAUSES.—There are three main causes which favour the production of a fatty liver.

1. It very commonly accompanies tubercular phthisis (consumption), and according to the researches of Louis and others, is found in two thirds of all cases of phthisis. Andral has explained this occurrence on the ground of impeded secretion of hydrogen by the lungs ; but the more recent investigations of Rokitanski go to prove that this is not the cause of the deposit ; but that it is an essential constituent, or pathognomonic combination of the "tubercular dyscrasia," in fact a part and parcel of the tubercular or consumptive diathesis, inasmuch as it allies itself with tubercular affections of every kind—viz., with tubercle of the intestinal mucous membrane ; tubercle of the bronchial glands ; tubercle of the serous membrane, and of the bones and brain, &c.

2. A fatty liver is often met with in persons who lead an indolent life and a luxurious diet ; in children who have been gorged with food ;

3. In persons who have accustomed themselves for years to dram-drinking.

ETIOLOGICALLY.—Waxy or lardaceous degeneration of the liver occurs more frequently in the male than in the female. Of 68 cases collected by Frerichs, 53 occurred in the male sex, and only 15 in the female ; and as regards the age of these 68 cases, we find the following :—

Under 10 years old	3 cases.
From 10 to 20	19 "
" 20 to 30	19 "
" 30 to 50	18 "
" 50 to 70	9 "
Total	
	68

This tabular arrangement clearly shows that the waxy, lardaceous, or amyloid degeneration of the liver, like scrofulous and tubercular affections, is more frequently developed during the age of adolescence, than at any other stage of life; and it may further be observed, that with few exceptions a waxy liver makes its appearance in persons of broken-down constitutions, the result of other morbid processes, and whose nutrition has been seriously impaired by divers causes.

SYMPTOMATOLOGY.—The symptoms of a waxy liver are not difficult of diagnosis. There is considerable enlargement of the organ, so large at times as to occupy a considerable portion of the abdominal cavity, and extends to the umbilicus or the groin; the increase is uniform in every direction; the outer surface is smooth, and denser than normal, and its lower margin is rounded, regular, and free from all indentations.

Waxy deposit in the liver has but little tendency to obstruct the portal circulation, consequently ascites and enlargement of the veins of the abdominal wall, and jaundice are but seldom present. Pain and tenderness are never prominent symptoms. The liver, as a rule, can be manipulated with impunity, and the patient complains only of a feeling of weight or tightness in the right hypochondrium. The consequences which follow waxy deposits in the liver are always of great importance as regards the affected parts, because the organs and tissues, so far as they are implicated in the disease, lose their normal functions.

The hepatic cells cease to take part in the formation of sugar, and the secretion of bile; the blood-vessels also, when implicated in the mischief, lose their capa-

bility of transmitting fluids through their walls, and cease to furnish the materials necessary for nutrition and secretion. These injurious consequences become more marked, the farther the degeneration has extended throughout other organs which play an important part in the elaboration of the blood, and the process of nutrition, viz., the spleen, stomach, kidneys, intestinal canal, and lymphatic glands, all of which are frequently found impregnated with the same disorder. Hence we can clearly see, how individuals suffering from a waxy liver present a pale, sallow, cachetic appearance, general anaemia, and debility. A waxy liver does not often obstruct the portal circulation, hence jaundice is not a common symptom; but enlargement of the spleen is very common. The functions of the stomach become more or less deranged; the appetite may cease, and vomiting with a clean tongue may supervene from time to time. The bowels are irregular; are sometimes relaxed, sometimes costive, sometimes pale, at other times dark or pitchy, with troublesome tympanitis and tenesmus. The urine is pale, and is voided in large quantity, as much as 3 to 5 pints in the 24 hours; specific gravity is about 1012, and holds in solution a considerable amount of albumen: this continues, and towards the termination of the disease only is the quantity diminished.

DURATION AND PROGRESS.—This disease is always a lingering one, its duration, as a rule, extending over many months, and its commencement obscure.

DIAGNOSTICALLY the disease presents but few difficulties. The uniform enlargement of the gland, its firm consistence, its association with enlarged spleen, albuminous urine, and its succeeding to disease of the bones,

scrofulous, syphilitic, and tuberculous affections, &c., are all indications which guide us with tolerable certainty.

TREATMENT.—Taking into consideration the various causes which give rise to waxy degeneration of the liver and kidneys, our general treatment and selection of medicines must vary accordingly.

1. Long-standing purulent discharges, such as we find connected with diseased bones or joints, should be treated with the *Merc.-Prot.-Iod.*, *Ars.*, *Assaf.*, *Phos. c. Silecia*, *Hepar. s.*, and *Sulph.*.

2. If able to trace the disease to constitutional syphilis, which appears to act as a predisposing cause, independently of its capability of inducing disease of the bones and protracted discharges, a cure is best obtained by the various preparations of iodine, viz., the *Iodide of Potassium*, *Iodine*, *Merc.-Prot.-Iod.*, and the *Syrupus Ferri Iodide*, and the waters of Aix-la-Chapelle, Woodhall in Lincolnshire, or Purton in Wiltshire.

3. If the waxy liver is connected with well marked symptoms of tubercles of the lungs and other organs of the body, *Calc. c. Chin.*, *Potass.*, *Iod.*, *Lycop.*, *Phosphorous*, and *Stannum* should be selected.

4. There are other chronic diseases that tend seriously to impair the general nutrition of the body, and which may be set down as predisposing causes of waxy degeneration of the liver, viz., the sequelæ of intermittent and remittent fever, dysentery and cancer; for such a condition *China*, *Quina.*, *Ars.*, *Carbo.-veg.*, and *Sulph.* should be selected, also the Carbonate, Sulphate, and Phosphate of Soda, and the Muriate of Ammonia. The late Dr. Budd strongly recommended the latter medicine in doses of from five to ten grains three times a day.

By means of this medicine he succeeded in removing an enlargement of the liver and spleen which had existed for nine months, which was accompanied by emaciation, pallor, and irritative fever: to these we must add the mineral acids, which have proved very successful in the hands of Murchison and myself, namely, the Nitric, hydrochloric, and the compound Nitro-hydrochloric acids.

In all cases of waxy degeneration we must at all times be on the look-out for complications, the chief being—

1. A sluggish condition of the bowels, to be counteracted by *Aluminia*, *Bry.*, *Calc. c.*, *Lycop.*, *Nux Vom.*, *Opium*, or *Sulph.*.

2. A harassing diarrhoea, which is wont to supervene in the latter stages of the malady, and which most probably arises from ulceration of the mucous membrane of some part of the intestines; must be checked by *Ars.*, *Arg. Nit.*, *China*, *Merc. Corr.*, *Ipec.*, or *Veratrum*, *Album* and Tannic Acid injections.

3. Vomiting, which is an important symptom in some cases, and is usually accompanied by a clean tongue and cessation of appetite, should be corrected by *Ars.*, *Cuprum*, *Nux Vom.*, *Arg.-Nit.*, *Ipec.*, or the mineral acids, coupled with pepsine and ice.

4. ALBUMINURIA.—The urine must be carefully and repeatedly examined, and the first trace of albumen met with must be combated by warm baths, the vapour, or the Turkish bath, and the nitric or hydrochloric acid.

5. DROPSY.—Serous effusions into the peritoneum and other organs and parts of the body must be removed by Turkish baths or the lamp bath, *Ars.*, *Chin.*, *Colchicum*

Dig., *Copaiba*, or the “*Ferri Ammonia citratis cum Strych. c. Dig.*”

6. Lastly, in those cases where “uræmia”* occurs towards the close of the disease, the remedies best indicated are a free action of the skin by *Acon.*, the vapour or Turkish bath, *Ars.*, *Nux Vom.*, and *Podophyllum*, to act freely on the bowels, and *Cantharides* on the kidneys and bladder.

* Blood-poisoning.

CHAPTER X.

FATTY LIVER.

THE second form of painless enlargement of the liver is that which is due to the deposit of fatty or oily matter in that organ. A certain portion of oily or fatty matter is one of the chemical constituents of the liver; but this may be so greatly increased, and appearing in different forms in the substance of the organ, as to constitute more than one-half of its normal weight. M. Vanquelin once analyzed a fatty liver, which furnished forty-five parts of oil out of 100 parts of the organ.

ANATOMICALLY.—This lesion is characterized by appearances resembling those exhibited by the livers of those fishes which furnish a large quantity of oil, the cod to wit: the organ is of a cream, yellowish red, or pale yellow colour, both internally as well as its outer surfaces; the liver is enlarged, the increase in size taking place chiefly in a lateral direction; its edges are flattened and swollen, the peritoneal covering is smooth, shining, transparent, and tense; the organ is soft, and pits on pressure; its flabbiness is such that it enables us to push it aside with the finger, and when the abdominal walls are thin, its soft doughy consistence may be readily felt. The fatty matter is generally distributed equally throughout the whole structure, or infiltrated in the connecting cellular tissue. Sometimes, however, it is deposited in a mass,

or forms several collections in various parts of the organ. This change is readily recognised by the greasy feeling it occasions. A section of it appears like that of yellow soap. The vessels seem pressed upon, are scarcely perceptible, and the greasy deposit is divided into angular masses by a coarse and compressed cellular tissue. The quantity of fat deposited in the organ is sometimes very great, and it sometimes exists even in a fluid (oily) state. Portal, in one case, found the liver quite white, and softened almost to the fluidity of melted fat, where no hepatic symptoms existed during life ; he also met with a similar condition of the liver in a female who had suffered from a severe form of syphilis.

CAUSES.—This condition of the liver is found most frequently in persons who have died of scrofulous tubercles in the lungs and of cancerous maladies. Independently, however, of tubercle, a fatty liver is developed in consequence of a luxurious and indolent mode of living ; in children who have been gorged with all kinds of sweets and rich food ; and in those who have for years indulged in dram drinking. In this case it is accompanied by accumulations of fat in the omentum, the mesentary, the pericardium, the heart, and the subcutaneous cellular tissue ; by fatty degeneration of the muscular fibres of the gall-bladder ; and even of the muscular tissues of the heart and kidneys. The skin puts on a leaden hue, the perspiration has a greasy appearance and a peculiar odour, and the fat throughout bears a strong resemblance to tallow or soap. The WAXY liver already referred to is, in fact, a variety of the FATTY liver ; it is, however, to be distinguished from the latter by the colour, which resembles beeswax ; by its

greater consistence, dryness and brittleness, and these qualities depend upon a peculiar modification of the infiltrated fat, which, although accumulated to a considerable amount, leaves but few traces on the scalpel.

When there is fatty degeneration of the heart in addition to that of the liver, there is a feeble inappreciable "cardiac impulse;" very faint cardiac sounds; a very slow, feeble, or quick and irregular beat of the pulse; with frequent attacks of giddiness, faintness, difficulty of breathing on the slightest exertion; and a feeling of sinking at the pit of the stomach.

When the kidneys become implicated, the urine is diminished in quantity, is generally turbid, deposits numerous oil-casts, and holds a large amount of albumen in solution; there is likewise a tendency to general dropsy; extreme pallor and pastiness of the countenance.

SYMPTOMATOLOGY.—The constitutional symptoms of a fatty liver are but few, and not very prominent; there is, however, general debility and want of tone in the nervous and vascular system; the patient flags, is easily tired, and bears depletion, active exertion, or the invasion of acute disease badly.

"To the eye," says the late Dr. Addison, in describing a condition of the integuments, which he believed to be pathognomonic of fatty degeneration of the liver:—"The skin presents a bloodless, almost semi-transparent, and waxy appearance. To the touch, the general integuments, for the most part, feel smooth, loose, and often flabby; whilst in many well-marked cases, all its natural toughness would appear to be obliterated, and it becomes so exquisitely smooth and soft as to convey

a sensation resembling that experienced on handling a piece of the softest satin. These appearances are chiefly met with in females." There is dyspepsia, flatulence, and hypochondriasis, with an irregular action of the bowels, which are sometimes costive, at other times profusely relaxed from very slight causes. Enlargement of the spleen in the fatty-liver is rarely present.

TREATMENT.—It is not often, says Murchison, "that fatty enlargement of the liver causes such a derangement of functions as in itself to call for any special treatment. As a rule, the treatment must be specially directed against the conditions in which the enlargement in question is known to occur. When for instance, the fatty degeneration is developed in persons who are large and gross feeders, and of indolent habits, the fat will generally disappear from the liver, as well as from all other parts of the body, if the individual adopts an opposite mode of living. *He should* rise early, take plenty of active exercise in the open air, *he should* take Turkish baths three or four times a week, drink freely of cold water, seltzer or the Vals water, night and morning, and live principally on lean meat, fowl, rabbit, and fish,—green vegetables, with light claret, hock, or water, mineral or plain; no salmon, eels, or herring. He should avoid butter, milk, cream, and all fat meats, fermented liquors, strong and rich wines, and all substances rich in starch or sugar. In fact, he must adopt a regular system of "Bantingism." Under such a diet the fat will not only disappear, but the tone and nutrition of the muscles will be much improved, and the patient's general strength much increased.

When a fatty liver is the result of alcoholism, a simple

withdrawal of the cause will in most cases be sufficient to effect a diminution in the size of the liver unless the disease is too far advanced. The diet here also, more particularly if the heart becomes similarly implicated, must be selected with due regard to the condition of each case.

If the stomach becomes deranged, a not uncommon accompaniment of a fatty liver, it should be corrected by *Nux Vom.* or *Pusatilla*. If the bowels become costive, they should be regulated by *Nux V.*, *Podoph.*, or *Sulphur*. Eating large quantities of table-salt with the food has been recommended by some authors ; and when circumstances permit, the patient should take the saline waters of Cheltenham, Leamington, Llandrindod, or Builth, in England ; those of Carlsbad, Marienbad, Kissengen, Ems, or Vichy, on the Continent.

When marked anaemia with general debility sets in, the various preparations of iron often prove of very great service :—the Ferri Am. Citras ; the Ferri et Quin. Citras, and my own preparation, the Ferri Am. Citras, cum. Strychnæ, cum. Digitalis, and the chalybeate mineral waters of Tunbridge Wells, Moffat in Scotland, and the Spa, Pyrmont, or Schwalbach on the Continent.

CHAPTER XI.

SIMPLE HYPERSTROPHY OF THE LIVER.

THE third form of painless enlargement of the liver is that known as "Simple Hypertrophy," by which is meant a uniform enlargement of the organ, with an increased size of the lobules and an increased size of the secreting cells, without any alteration of structure. The gland may attain two or three times its normal size, without its form being essentially altered; it is hard, lacerable, and full of blood; the acini are enlarged, and of the normal reddish brown colour.

The circumstances under which this increased growth of liver takes place are somewhat obscure; but a persistent (hyperæmia) determination of blood appears under certain circumstances to favour the development of enlargement of the organ. Hypertrophy has been observed in cases where a portion of the liver has been destroyed by some exudative process, the result of syphilitic hepatitis, or from obliteration of the branches of the portal vein.

HYPERTROPHY has been found to exist with certain forms of "diabetes mellitus." Frerichs, in 1849, examined the liver of a man, *aet. 44*, who had died of "diabetes mellitus," tubercles in the lungs, and pneumothorax. He found the liver considerably enlarged, its form normal, and outer surface smooth; its

substance was congested, dense and firm, and of a uniform brownish red colour. In 1854, Frerichs examined another liver, that of a woman's, aged 37, who had suffered from "diabetes mellitus," but who died from caries of the petrous portion of the temporal bone, and erysipelas of the face, which presented the same abnormal characters. Stockvis, in 1856; Claude Bernard, in 1855; Hiller, in 1843; Griesinger, in 1859, met with similar cases. In 1870 a similar case came under my own observation; it was that of a near relative who came to consult me from North Wales for diabetes mellitus. The specific gravity of his urine was as high as 1050, and held in solution a large quantity of sugar; there was considerable enlargement of the liver, which was uniform all over; a carefully selected diet, a Turkish bath daily, *Podophyllum*, and *Nux Vom*, internally; and a compress sufficiently capacious to cover both hypochondriac regions, (which brought out in ten days a tremendous crop of pustules), sufficed to dispel every vestige of sugar, and reduce the enlarged liver to its normal standard within the brief period of six weeks.

"Hypertrophy" of the liver, in company with "hypertrophy" of the spleen and lymphatic glands, frequently attends that condition of the system, known "LEUKÆMIA." Virchow, Bennett, Vogel, Freidreichs, and others, have recorded a series of observations in proof of the occurrence of an altered nutrition of the liver, in conjunction with THIS abnormal condition of the blood.

It has been noticed by physicians who have practised in the tropics, that after some years' residence in those countries the liver is wont to increase in size without

any actual structural disease. Similar observations may be made with regard to malarious districts of the temperate zone, as I have met with five cases of enlargement of the liver and spleen in persons who came to consult me from the fen districts below Cambridge, and the Isle of Ely.

TREATMENT.—In the treatment of simple enlargement of the liver, we must be guided by the circumstances connected with each particular case, as enlargement may take place from many different causes; consequently, each case will command a special mode of treatment, which must be left to the judgment and discretion of the practitioner.

CHAPTER XII.

HYDATIDS—ECHINOCOCCI OF THE LIVER.

SYNONYMOUSLY.—Hydatids are known as the Hydatis of Laennec, and derived from the Greek ὑδατίς, a vesicle, from ὕδωρ water; Acephalocystis, from ἀ privative, κεφαλὴ the head, and κυστὶς a vesicle — simply a vesicle without a head ; the *Vessie sans adhérence* of Cruveilhier ; the Echinococcus Hominis of Rudolphi and Bremser ; the Polycephalus Humanus of Zeder ; the Fischiosoma of Brera.

NATIONALLY.—The Hydatide of the French ; the Wasserblasse, Blasenwürm of the Germans ; the Idatide of the Italians, and the Hydatid of the English.

HISTORICALLY.—Physicians at a very remote period were undoubtedly familiar with large cysts of the liver, filled with an aqueous fluid, but were ignorant of their real nature. Hippocrates, A.D. 450, in his 55th Aphorism (section vii.), gives the following :—“ When the liver is filled with water and bursts into the epiploon, in this case the belly is filled with water and the patient dies. Galen, some two centuries afterwards, understood this case to refer to Hydatids of the liver, but finds difficulty in explaining how they could burst into the epiploon unless by ulceration. It would seem, says Galen, that our author meant the cavity of the peritoneum. Hartmann, in 1685, directed attention to their being of an animalcular nature. Tyson, in 1691, endeavoured to prove that they were a species of worms, or imperfect

animals. Pallas, in 1760, recognised them as parasites, and showed their close connection to the tapeworm—a discovery which was confirmed and extended by Goeze shortly afterwards. The first accurate description however, of a "Human Echinococcus" was given by Bremser in 1821, who traced the relationship of a hydatid to the tapeworm; and it is now recognised more or less in all countries by those who have read the able works of Von Siebold and Frerichs, that the echinococcus is nothing more nor less than the "embryo" of a tapeworm, which immigrates in that form into the liver, and there assumes the form of tapeworm by gradual development, and enters the intestinal canal as such.

ANATOMICALLY.—The anatomy both microscopically and otherwise of the hydatids and echinococci, are marvellously interesting, and given with great minuteness both by Frerichs and Rokitanski, which are here briefly embodied, in the following description:—

1. Hydatid, or the Acephalocyste of Laennec. This consists externally of a firm fibrous capsule, of a whitish tint, intimately adherent to the surrounding glandular tissue, and freely supplied with a shower of branches of the hepatic artery, and portal vein. Within this fibrous sac or capsule is enclosed a solitary, independent and thoroughly distended bladder, or vesicle, containing a limpid serous fluid—the so-called mother-sac of the echinococcus; that is to say, in its earliest stage or Embryonic form. Within this parent sac are found floating about other and similar vesicles of various sizes and numbers. In size they vary from a poppy or millet seed, or homœopathic globule, to that of a goose's egg, and sometimes even to a greater

magnitude, and their number not unfrequently amounts to several hundreds, or even thousands. Pemberton counted 560 hydatids in one cyst, and Allen 7,000 to 8,000. The larger vesicles sometimes contain smaller ones of a third generation, and occasionally the latter in their turn contain others of a fourth generation. From this remarkable development and increase in numbers, it can readily be understood how the size of the mother-sac must increase, according to the number and size of the daughter and granddaughter vesicles, and in proportion to the quantity of contained fluid, which often attains to the side of a man's head, and even much larger. This growth of the mother-sac may go on until it ruptures, and then only a few shreds of it may be found lying among the daughter and granddaughter cells. In their unimpaired vegetation, however, these vesicles are filled to repletion, are distended and elastic, and impart to palpation a sense of tremulous fluctuation—the "hydatid tremulousness" of Rokitanski.

2. *Echinococcus*.—On a close inspection of the inner surface of these vesicles, we perceive in many of them a whitish, opaque, gritty efflorescence, usually aggregated in groups; and if submitted to the field of the microscope there is revealed to our anxious gaze thousands of densely nestled animalcules, which prove by the most varied changes of form that they long continue to live on in the dead subject. Many of them are likewise found free in the liquid found in these vesicles. These are the scolices—the embryo, in fact, of the "*Tænia echinococcus*," in various gradations of development. This entozoon is from the $\frac{1}{20}$ to the $\frac{1}{4}$ of a line in length; its head is similar to that of the *tænia*;

it is furnished with four suckers and a proboscis, and encircled by a double festoon of hooks, the number of which, according to Kuchenmeister, amounts to from 28 to 36 or from 46 to 52. The head of the animal is separated from its body by a groove, and on its posterior extremity is a transverse cleft or depression, in which is inserted a cord-like appendage, by means of which the creature maintains its seat upon the vesicle. The body presents elongated striae, and between these striae are seen oval lime-like corpuscles, resembling those found upon the cysticercus. In its developed condition the creature appears in the above form; but this is not always the case, as other forms are observed, where the mother-sac contains no daughter-vesicles, and the scolices only grow upon the inner surfaces of the primary sac. Other hydatids are met with which contain no scolices at all; here the external capsules is lined by a mother-sac composed of several layers in which no scolex can be detected, either on its surface or in the fluid within: in form they may assume the shape of a heart, a pitcher, or a horseshoe.

CHEMICALLY, the fluid filling the vesicles is colourless, clear, or slightly opalescent, of low specific gravity, viz., from 1·008 to 1·015. It coagulates readily by heat or Nit. acid, and contains a very small amount of fat. A thousand parts will yield fifteen parts of solid ingredients, principally common salt, a trace of sulphate of soda, phosphate of lime, and some albuminous extractive matter. The envelopes of the hydatids leave when dried a brown residuum which dissolves with a deep brown colour when boiled with hydrochloric acid.

Hydatids are formed in all parts of the liver; in the

right as well as in the left lobe, on its upper as well as on its lower surfaces, down deep in the substance of the gland, and cropping out from its surface or margins. In the majority of cases there is but one cyst, but not unfrequently there may be two or three, and in exceptional cases five or six may exist in the same organ. Not unfrequently they occur in several organs simultaneously. Thus they will infest in vast numbers both the peritoneum and the abdominal viscera, and sometimes the thoracic organs.

Hydatids vary much in size and the direction they take; in magnitude the sacs may attain or even exceed the diameter of a foot or more; they have been known to fill the greater part of the abdominal cavity and the right side of the chest. The more the cysts grow the more is the glandular tissue compressed and reduced in size. In the early stage the cysts may form a circumscribed tumour at one part of the liver, not larger than a Seville orange or Spanish onion; the alterations in the form of the liver are as various as the directions in which the cysts develop themselves; the tumour is neither dense nor doughy, but is as a rule elastic, and sometimes fluctuating (the hydatid tremulousness of Rokitanski), particularly if the cyst be near the surface. The echinococcus cysts (if not checked by proper treatment) may become perilous through their great volume, and when present in great numbers generally prove fatal through exhaustion and great wasting, and independently of their injurious effects upon the glandular tissue, interfere with the functions of the adjoining organs, and ultimately burst and empty themselves through various channels.

The direction in which the perforation takes place varies considerably. Davaine has collected a number of cases scattered through the records of medicine, with something like the following results, viz.:—

The echinococci bulged into the thorax in 4 cases.

" opened into the pleural cavity 	9 ,
" opened into the base of the lung, or into the bronchi 	21 ,
" communicating with the bile-ducts 	8 ,
" bursting into the abdominal cavity 	8 ,
" bursting into stomach or intestine 	22 ,
" not extending beyond the liver 	94 ,
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Frerichs gives us the records of 23 cases which have come under his immediate observation, viz.,—

3 Extended into the right side of the chest.

1 Into the base of the right lung, where it gave rise to a large abscess.

1 Opened into the bronchi.

1 " " intestinal canal.

2 " " abdominal cavity.

1 Opened externally through the umbilicus.

14 Remained confined to the liver—11 of these showed no symptoms during life; in 9, the echinococci were dead and undergoing fatty degeneration. One was calcified.

The writer has met with 10 cases of echinococci in the course of his professional career; of these—

5 Burst into the abdominal cavity.

3 " " stomach.

2 " " base of right lung.

DURATION OF THE DISEASE.—As the development of the echinococci is slow, the duration of the disease is likewise slow, and may exist for many years before they cause death, or terminate in recovery. Frerichs has met with a case where the disease had existed for about seven years. Barrier, in 1840, gives an analysis of 24 cases in reference to this subject:—

In 3 cases the disease lasted about 2 years.

" 8 " " " 2 to 4 "

" 4 " " " 4 to 6 "

And in single cases the affection had existed from 15, 18, 20, or even 30 years.

MODES OF TERMINATION.—The manner in which the hydatids (like its duration) terminate, vary considerably. The hydatids not unfrequently undergo a spontaneous cure—the animals die, as proved by post-mortem examinations, without their existence having been suspected during life. In some cases a cure follows the expulsion of the cyst through the stomach, intestine, bronchi, and sometimes by a direct outlet through the abdominal parieties. Moreover many cases

are brought about by medical and surgical treatment. Notwithstanding the *vis medicatrix naturæ* coupled with the most approved surgical and therapeutic treatment, a fatal termination is by no means an uncommon result, which may be brought about by a variety of ways.

Death may take place from the bursting of the hydatids—

Into the peritoneal cavity ;

Into the pericardium ;

Into the pleural cavity ;

Into the lungs, by perforating the diaphragm.

Death may take place from sheer exhaustion, the result of prolonged suppuration of the lungs.

Death may take place from inflammation of the hepatic veins, and pyæmia.

Death may take place from plugging of the pulmonary artery ; from inflammation and suppuration of the circumference of the sac ; or death may take place from haemorrhage into its interior ; and in some cases death takes place from general marasmus, caused by the echinococcus in the course of its growth, gradually compressing the greater portion of the hepatic parenchyma, and interfering with the normal functions of the adjacent organs.

SYMPTOMATOLOGY.—The early symptoms of the appearance of echinococci in the liver are exceedingly obscure, particularly when small or deeply seated ; and it frequently happens that echinococci exist in the liver, grow and degenerate, and are found after death without having exhibited any symptom of their presence during life. This is no uncommon occurrence.

"I have found," says Frerichs, "a 'hydatid' in the liver as large as a man's fist which had occasioned no remarkable symptom, and whose presence had consequently not been recognised during life." I have myself found an ABSCESS in the liver sufficiently capacious "when empty" to hold a quart-pot, which some of my *confreres* failed to discover, but which was diagnosed by myself, and confirmed by Dr. Vaughan Hughes. In the majority of cases, however, local changes take place which will indicate beyond doubt the presence of a "hydatid," or some other abnormality; a knowledge of which must be obtained by a thorough investigation of the history of the case. In the generality of cases, however, particularly when the hydatids are fairly developed, local changes take place, which indicate, and that without little doubt, the existence of hydatids. The liver increases in size, and may be traced projecting into the chest or the abdominal cavity, or at other times in both directions; by so doing it naturally loses its normal form. It may extend upwards as high as the second rib; it may extend downwards as low as the pelvis; and it may extend laterally either to the right or to the left; its boundaries in either case are to be determined by palpation and percussion, and in some cases by the aid of the ear, and stethoscope. Bearing in mind the normal position of the abdominal viscera, as laid bare to us on the dissecting-room table, and taking into consideration the history of the case in all its bearings, we shall have, in the majority of cases, but little difficulty in arriving at a correct diagnosis. It is next to an impossibility to describe all the various modifications of form which echinococci of the liver may

assume ; a correct knowledge of these can only be acquired by a frequent and extended experience at the post-mortem table. More frequently a rounded bulging of the liver is felt in the right or left hypochondriac and epigastric region. On palpation hydatids are felt as smooth, globular, elastic tumours ; on percussion they yield a peculiar vibration or trembling, which is felt distinctly when the tumour is gently compressed by two fingers of the left hand and struck abruptly with the right hand. There is but little pain attending echinococci of the liver ; the disease develops itself slowly and insidiously, without any fever, stomach, or bowel derangement, jaundice or ascites. But when the growth of the tumour increases to such an extent as to act as a mechanical pressure upon the adjoining viscera, then we encounter a series of distressing symptoms ; there is difficulty of breathing, there is a short dry cough, and palpitation of the heart, there is frequent vomiting and obstructed defæcation, and there are varicose veins and general œdema of the lower extremities ; symptoms which indicate consecutively the rising of the animals into the thorax, the dislocation of the heart, compression of the stomach and bowels, and pressure on the vena cava.

TREATMENT.

I propose to divide the treatment of "Hydatids" and "Echinococci" under the three following heads, viz.—

1. The Prophylactic,
2. The Therapeutic,
3. The Surgical.

1. PROPHYLACTIC.—Frerichs, in his elaborate work on

the liver, says we are acquainted with no prophylactic measures for preventing the entrance of the "Tænia echinococcus" into the system, because the manner in which this is effected has hitherto eluded all investigation. Hence medical treatment can only be directed against the hydatids already developed." Let us see:—"Prevention," it is said, is better than cure. Now I have already pointed out that the essential cause of the formation of the echinococci is the swallowing of the ova or embryo of the "Tænia echinococcus," which pass from the stomach into the duodenum, and from thence into the liver. Accurate observation is, however, wanting as to the manner in which this is accomplished; all we at present know is, that they are met with in large numbers in the liver, as well as other parts of the body. As a general proposition, it is inferred that the animal infested by cystic worms is usually the source of food, or the prey, of that infested by tapeworms. The host of the cystic worm is devoured by a carnivorous predaceous animal, and by this means the cystic worm arrives, together with his host, in the stomach of the carnivorous animal. During the process of digestion, the enveloping cysts in which the cystic worms were enclosed are digested, or opened by the teeth of their devourer, when the cystic worm escapes into the cavity of the stomach, and thence to other organs of the body, either by migration, or may be by absorption, *via* the lacteals and thoracic duct into the general circulation. For our present purpose it is sufficient to know that the OVA of the "Tænia echinococcus" develop hydatids in many animals besides man—namely, the sheep, dog, lamb, rabbit, rat, and mouse; and who

knows but what a “sleek little mouse,” who invades our larder by night, may not deposit the OVA of the echinococcus on our bread, butter, and cold meat, which we innocently partake of at our first meal on the morrow, and more particularly cheese. Again, the animal may be conveyed to the inward man by means of impure water, raw vegetables, fruit, and roots. Like the embryos of other “*Tæniæ*,” however, they are so small as to escape the field of ordinary vision. Their migration, however, is certainly performed like that of the embryos of other *Tæniæ*, by passing into the system, as I have ventured to suggest, either by ABSORPTION or by perforating the intestines, and getting into the abdominal cavity, where they prefer attaching themselves to the liver or the kidneys, or to the organs in the cavity of the chest, or by migration along the “*ductus communis choledocus*” into the liver, or to the outer surface of that organ.

The hydatids of human beings, says “Thudicum,” most frequently accompany them to their graves; or at all events, they are not permitted to continue their dangerous existence; but the echinococci of sheep or lambs are again set free in the process of slaughtering, and are in turn to be devoured by dogs, “and it may be” by cats, pigs, ducks, rats, and mice, whose favourite haunt is the slaughterhouse, butchers’ shambles, or the knacker’s yard, to be again developed into tape-worms. It has not yet been clearly proved that the animals herein mentioned, in addition to the dog, are not infested by the ova of the echinococcus. While man, then, does not contribute to the multiplication and propagation of the worm, his constant liability to the

disease is kept up by the "cycle" of infection which subsists between dogs and the animals I have mentioned, and sheep.

It follows, therefore, that for the prophylaxis of the echinococcus in man, it will become absolutely necessary—

1. To prevent dogs, or any other pet or household animals, from feeding on the offal of sheep, lamb, or other animals infested, or supposed to be infested, by "hydatids."

2. Dogs, and all other animals (as far as able), ought to be rigidly excluded from slaughterhouses, butchers' shops, and the knacker's yard.

3. "Dog's meat and cat's meat" in any form ought to be WELL BOILED; and no "tit-bit" of fresh meat, particularly "liver," should be dropped into Carlo, or Lilley's mouth when cook goes to pay the butcher's weekly bill. Against this practice a "dead stand" should be made by every Lady Bountiful, unless desirous of being invaded and overrun by these parasites.

A pet nightingale is to my knowledge daily fed on raw meat: the owner, a fine woman, is an invalid; she flags, and is out of sorts; who knows but what she is a victim to an echinococcus, which is gradually and imperceptibly robbing the bloom from her cheeks, innocently conveyed to the fair jailer by that matchless warbler of the brake and forest? I know another lady who has adopted a guinea-pig as her "darling pet;" she coos and caresses him, takes him to bed, and allows him to nestle on her bosom. She feeds him with all sorts of food—raw meat, green food, and fruit of all kinds. This lady is "embonpoint:" she complains but

little yet, although there is depicted on her forehead signs of liver complaint—who knows but what this guinea-pig has not innocently transferred the germs of a hydatid to her liver; which ere long will burst forth with all the symptoms of the disease in its worst form ?

4. To destroy, as far as possible, the tape worm generated in the dog—for this purpose—it would be well that all dogs were periodically physicked with gamboge, calomel, turpentine, or kousso, and their excreta buried in the ground or destroyed by fire.

These are measures which are of national importance—particularly in such countries as Iceland, where the sheep-dog during the long winter nights occupies a portion of the overcrowded dwelling of his master, and where “hydatids” are the cause of one-seventh of the human mortality, and which merits more than ordinary attention in many parts of our own country.

Therapeutically, very little it is feared can be done in the destruction of these animals by medicine. We know full well that when the tapeworm infests the alimentary canal, we have in the Areca nut, *Filix mas*, Kamela, Kousso, Pomegranate, and Turpentine, potent remedies, which undoubtedly do kill the animal; but to treat the hydatid in the liver by the same means, is quite another matter: for the attainment of this object, however, certain therapeutic agents have been employed, which are thought to pass from the blood into the “cysts,” and there kill the inhabitants in their own fortresses. Baumes believed that calomel was endowed with such properties; Cæsar Hawkins, iodine, and the iodide of potassium, and Laennec the common

salt. The virtue of the latter is much relied on by many other French physicians, who recommend that a strong solution of it be applied either as a lotion or in the form of a poultice over the tumour. It is worthy of remark, that common salt is the chief ingredient found in the fluid of hydatid tumours, and in many instances the fluid from a hydatid cyst in the liver has been found to be quite devoid of albumen, and to be little more than pure water holding in solution common salt. Such being the case, the question may well be asked, has the sac of a hydatid tumour any special affinity for salt? and does the accumulation of this substance beyond its normal quantity in the fluid within the sac destroy the echinococcus, or arrest their further increase or their growth? These are, to my mind, questions well worthy the close attention of every physician.

HOMOEOPATHICALLY.—There are several medicines set down in "Text books" and "Domestic Guides" as applicable to the treatment of tape worm, namely, Ambra Grisea; Calc. carb.; Arsenicum; Mercurius; Graphitis; Pusatilla; Sabadilla; Stannum and Sulphur. Each of these may be worth a trial, but to my mind *Arsenicum* is eminently useful when resorted to in time, with the application of a compress over the whole of the hepatic region, saturated in a strong solution of "common salt."

Arsenicum, cures anasarca following fever, ague, or that following the retrocession of some acute eruption.

Arsenicum removes the ascites resulting from disease of the liver or kidney.

Arsenicum, cures hydrothorax and hydro-peri-

cardium ; and Arsenicum has in my hands cured two cases of the "Ascites saccatus," or sacculated dropsy, in other words, "hydatids," with the help of the salt water compress.

SURGICALLY.—We now come to the most important section of the treatment of hydatids—the use of the knife, with other surgical appliances, and electricity. Several modes of operating have from time to time been adopted with varying results, to these I shall now briefly refer.

1. *The Simple Puncture.*—This mode has been adopted with both large, medium, and small-sized trocars. This plan has generally been found free from danger, provided the adhesions are sufficiently complete to prevent any of the fluid from escaping into the cavity of the chest, or the peritoneum. It may be that one puncture may suffice to effect a cure; but in other cases several operations of a like kind may be required before the "cyst," is completely destroyed.

2. *The puncture of the hydatid*, with subsequent injection of water, a solution of iodine, port wine, or bile.

Having first plunged the trocar into the cyst, the trocar is withdrawn, and the canula is allowed to remain in the cyst, through which pure water is first injected to wash out the pus, and shreds of the hydatid membrane, then diluted alcohol, a solution of iodine, or even bile is injected into the cyst. Favourable results generally follow either of these solutions.

Bile has been selected from the fact, that it kills the echinococci; moreover it acts as an antiseptic, and so iodine.

3. *The opening of the hydatid*, by means of caustic,

or the Vienna paste ; it is, however, a clumsy and painful operation, and but seldom adopted in the present day.

4. *By incision into the sac.* This mode is only permissible when the tumour threatens to burst externally, and the integuments are red ; or when we are certain that firm adhesions exist between the sac and adjacent structures.

5. *Another plan,* is to make an incision at two different times, first down to the peritonæum, and after the wound has been dressed with lint or cotton wool for some days, then the scalpel is carefully plunged into the "cyst."

CHAPTER XIII.

CANCER OF THE LIVER.

HAVING now disposed of the inflammatory and non-inflammatory diseases of the liver; those which result from mal-nutrition of its tissues: and those which arise from faulty secretions: there now remains for our consideration those which consist of some growth which becomes obnoxious to the normal structure of the organ. Foremost among the members of this class is CANCER; which, according to the most carefully collected statistics, is found more frequently in the liver than any other organ in the body. Indeed, no serious disease of the liver is, in this country particularly—and among that class of the community who have not drunk hard—so frequent as cancer.

In some instances the liver is the only organ impregnated with the germs of cancer, but far oftener the formation of cancerous tumours in it is consequent of the deposit of cancer in some other part of the body, more especially the stomach and the mammae.

HISTORICALLY.—Cancer of the liver was not clearly defined from other tumours of that gland, till the early part of the present century. It is, however, worthy of note that cancer of the external organs, particularly the mammae and scrotum, was clearly recognised as far back as the era of Hippocrates. We have in the forty-

second aphorism of his great work the following striking sentence :—" In cases of jaundice it is a bad symptom when the liver becomes *indurated*." clearly proving the marvellous diagnostic powers of that great man at that remote period of " medical history." Similar observations are to be found in the writings of Galen, Aretæus and other ancient authors. Under the term " scirrus hepatis," however, every form of induration of the liver was formerly included, whether its character was that of the simple, the granular induration, or the true cancer. Bianchi, in his " Historia Hepatica," Hoffmann, in his " Dissertatio Medica de Hepatis Scirrhos," 1722 ; Boerhaave, Van Swieten, Morgani, Ruysch, Stoll, and Matthew Baillie, down to 1794, improved but little on the crude pathology of cancer as viewed and described by the physicians of a far more remote era; and it was not till 1812 that Bayle, of Paris, gave us the first accurate description of cancer of the liver, and a clear statistical demonstration of its frequent occurrence in that organ. He it was who first pointed out that those tumours of the liver, previously described as steatoma,—white bodies,—nodes,—tubercles,—granular bodies,—scirrus, &c., were in reality " true cancer"—inasmuch as their anatomical structure was identical with that of cancer of the breast, and because they underwent the same changes. — co-existed with cancer in other organs, and finally produced the same injurious consequences upon the general constitution.

Anatomically, many circumstances conspire to render the liver more susceptible to the deposit both of abscesses and the dissemination of cancer than any other organ in the body. We have in the first place,

the great vascularity of the organ, the slowness with which the blood, already retarded by passing through a complicated system of capillary vessels, traversing the dense plexus of vessels that goes to form its lobular substance—a cause unquestionably favourable to such a result. Moreover we well know that the liver is the grand sentinel or “floodgate” through which the whole blood returning from the lower extremities and intestines must pass before it gets to the great centre of circulation and purification—the heart and lungs. Bearing this in mind, we can readily perceive how, when the stomach or intestines become ulcerated, the blood that flows to and through the liver from these parts is liable to be contaminated by pus, and other noxious aliments, setting up inflammation which quickly terminates in abscess. How? When the stomach is the seat of cancer the portal blood is liable to be contaminated by cancer germs, which being stopped in their passage through the liver, are there deposited and developed into “cancerous tumours.” In such cases the abscesses and the secondary cancerous tumours are usually found only in the liver, which seems to detain all the pus globules and cancer germs that are brought to it by the portal blood; and it rarely happens, under such circumstances, that any of these germs of mischief pass through to cause abscesses or cancerous tumours in the lungs or other organs of the body. There are four varieties of cancer (carcinoma) found in the liver, each having its peculiar characteristics, which we will now briefly examine in succession.

1. THE MEDULLARY CANCER.—This is the most common form of cancer found in the liver. It occurs either

in the shape of detached masses, or as an infiltration in the liver structure. In size the medullary cancer varies from that of a millet or hemp-seed—a homœopathic globule, to an apple, a cricket-ball, to a child's head. In most instances morbid growths of various sizes are found in the same individual. In number they vary, sometimes there may be only one, sometimes a few, at other times very numerous; at other times we meet with one as large as a man's fist, surrounded by several small ones. The greater the number of those occupying the circumference of the organ, the more numerous will be the protuberances on the surface; and when the morbid growths are numerous and large, two or more often coalesce.

In consistence we find two varieties, which by some pathologists have been considered as differing in texture. They do not, however, constitute any essential distinction, but are merely different degrees of development of the same morbid growth. In the first stage the cancer is of the consistence of bacon (the lardaceous of Frerichs), and presents on section a smooth, homogeneous, shining surface of a dull white colour, and without a trace of blood-vessels. On pressure, a small quantity of a thick creamy fluid exudes from the meshes of a dense fibrous structure, which is detached from the adjoining hepatic tissues with considerable difficulty, and has but a very faint cellular investment, scarcely perceptible to the naked eye.

2. EUCEPHALOID CANCER.—The second variety presents all the characters of the true eucephaloid (brain-like) disease; its usual colour is milk-white; it is, however, at times, more or less vascular, and conse-

quently in part grey, yellow, brownish red, or even dark red; it is spongy, and on pressure yields a large quantity of a thin milky fluid, which is contained in the meshes of a friable fibrous tissue. The tumours are invested by a delicate cellulo-vascular sheath, which is easily detached from the substance of the liver. When present with the first variety they generally form the large morbid growths.

3. CARCINOMA (literally a crab).—This form of cancer is not met with in the liver quite so often as the one we have just disposed of; it is, however, sometimes taken for the medullary, and the mistake is accounted for from the fact that the two frequently co-exist. In consistence it forms masses from the size of a filbert to a man's fist, which are surrounded by an investment of delicate cellular tissue, and although the surface is uneven and lobulated, yet the general outline is round. In texture it is firm and almost cartilaginous; in colour it is of a pale yellowish red, and almost of a glassy transparency. These carcinomatous masses are commonly found in considerable numbers, and, like the medullary form, they cause rounded protuberances of the organ, and produce an increase in its weight and size.

4. FUNGUS HÆMATODES.—This form of cancer is characterized by the abundance of blood-vessels, which are large, and furnished with thin walls, so that they are easily torn, and give rise to the extravasation of blood. This infiltrated medullary cancer is analogous to the other infiltrations of the liver tissues already referred to. It always contains obliterated and obsolete blood-vessels and gall-ducts which are gradually absorbed. The infiltration attacks larger or smaller sections of the

liver; it does not present distinct boundaries, but insensibly passes into the healthy structure. It is rarely present without the nodulated form; it is the seat of haemorrhages, which are proportioned to the rapidity of its growth, and the looseness of its texture. In some cases it penetrates through the peritoneal covering of the liver; its development then proceeds with great rapidity, while it induces exhausting haemorrhages. In other cases it perforates the coats of the larger gall-ducts and biliary passages, and grows into their cavities.

5. MELANOTIC CANCER.—A medullary carcinoma not unfrequently occurs in the liver in the form of melanosis (black cancer). In this case a number of small nodules are disseminated through the liver, which are partly pale and partly coloured with yellow, brown, or black pigment, and which present an irregular form, and in most cases an ill-defined outline. The liver, in consequence, acquires the appearance of a piece of granite. The pigment is deposited for the most part in the interior of the cancer cells they are also found floating free in the cancer juice. This form of cancer is marked by rapid growth and extension. In addition to the foregoing, Frerichs has pointed out two other but rare forms of cancer found in the liver, namely the "cystic" and "colloid." The first presents itself in the form of rounded cavities from the size of a pea to that of a walnut, which is filled with a clear serous fluid, and lined by a smooth serous-looking membrane. The second contains cavities of a larger size, and filled with a gelatinous fluid.

From the foregoing description of cancer of the liver it will be observed that they differ as much in firmness,

vascularity, and colour, as they do in other parts of the body. Sometimes the tumours are white, firm, and fibrous (scirrhous, hard); sometimes they are pulpy and whitish, or greyish, presenting a strong resemblance to BRAIN, and which led Laennec to apply the term Eucephaloid; sometimes the tumours are extremely vascular, and full of blood, which led Hey and Wardrop to give it the name of Fungus Hæmatodes; sometimes the tumours are dark or sooty, which led Laennec to give it the name of Melanosis (black); sometimes the tumours are filled with a gelatiniform or gluey substance, which led Velpeau to designate it as Colloid—from the Greek (*κόλλα* glue).

ETIOLOGICALLY.—The immediate cause of the development of cancer in the liver, like that of cancer in general, is entirely unknown. We are only acquainted with those external conditions which accompany the development of this pest of humanity, and which it is the custom to connect, although remotely, with the disease. In speculating, however, on the cause of cancer, the question immediately arises, is the germ of this baneful disease a true parasite, introduced from without; or is it generated within the body, and of the materials of the body, under the influence of certain morbid agencies? The strongest plea in favour of the first theory is this, that cancer originates in various organs, and has in all of them independent vitality and powers of growth. This is clearly shown in continued increase in the primary tumour, however small it may have been; besides, it is further and fully proved that the transplanting of one or more germs from the primary tumour to a distant part of the body, is sufficient of

itself to communicate the disease to that part ; moreover cancer can be conveyed from one animal to another, both by inoculation and the injection of the cancerous matter into the veins : a further proof of its parasitic origin. But although cancer is capable of being thus transplanted from one individual to another, it occurs in almost all cases under circumstances in which it is difficult to believe that any such inoculation or infection has taken place : the most common being from some direct injury, or prolonged pressure and irritation of some part of the body.

Thus cancer of the breast is frequently ascribed to a blow ; cancer of the lip to the constant pressure of a pipe ; cancer of the penis to congenital phymosis ; cancer of the anus and rectum to piles or syphilitic vegetations ; cancer of the scrotum, in sweeps, to the irritation of soot, &c.

These few instances go to bear out the old doctrine, that a disease not primarily malignant may become so,—a doctrine which is in some degree at variance with the theory that the germs of cancer are always introduced from without. The structure of cancer affords additional reasons for rejecting the idea that the germs of the disease are always introduced from without. The essential elements of cancer, as of other tissues, are nucleated cells and fibres. These cells multiply by throwing off the germs of fresh cells from their outer surface ; and sometimes also from their inner surface, as in the colloid form of the disease.

All these circumstances go to prove that cancer originates in a depraved nutrition of the original nucleated cells of the part in which it first appears.

AGE.—Cancer of the liver, say Frerichs, belongs pre-eminently to the later periods of life, although Farr mentions three cases where it appeared in early infancy, one in an infant three months old (liver and lungs), one in a boy, two and a half years old (testis), and another of the same age (pelvis). Of 31 cases observed by that author he gives the following results :—

From 20 to 30 years old	2	cases.
„ 30 to 40 „	4	„
„ 40 to 60 „	15	„
„ 60 to 70 „	8	„
Above 70 — „	2	„
<hr/>		
Total	31	„

Of 52 cases recorded by other observers we have :—

From 20 to 30 years old	5	cases.
„ 30 to 40 „	10	„
„ 40 to 60 „	26	„
„ 60 to 70 „	11	„
Above 70 — „	0	„
<hr/>		
Total	52	„

Of 8,289 deaths from cancer in Paris as recorded by Herrick and Popp, 578 cases are ascribed to the liver alone.

Age appears to exercise but little influence in predisposing cancer of the liver, as both are fairly balanced. Of the 31 cases observed by Frerichs, 10 were men and 21 women; of 60 other cases collected from various sources 35 were men and 25 women; and of the total 91 cases, 45 were males and 46 females. Of 31 cases

recorded by Van der Byl 13 were males and 16 females; whilst the mean age of the males was 41, females 50. Walshe states that he finds hepatic cancer more frequent in males than in females, in the proportion of 27 to 18, very rare before 35 or 40 years, most common between the ages of 50 and 70, two-thirds of the total number of deaths occurring within the latter periods.

CAUSES.—Of special causes of hepatic cancer, predisposing or otherwise, none have been discovered. The disease is met with in the anaemic as well as in the plethoric ; in the badly fed as well as in the well fed ; in the peasant's hut, the cot of the mechanic ; the home-stead of the farmer, the house of the well-to-do tradesman, the baronial halls of our aristocracy, and the palaces of royalty. Like its prototype, phthisis, it spares neither young or old, male or female, the peasant, or the prince. Spirituous liquors, which so easily derange and even destroy the secreting functions and nutrition of the liver, do not predispose to cancer of that organ. The same may be said of climate, as we find it endemic in both warm and cold countries.

DURATION.—It is impossible to determine accurately the duration of cancer in the liver, as its premonitory stage is in most cases so obscure as to elude the most careful investigation. There are instances in which the progress is slow and almost latent for many years until the very highest grade of marasmus—wasting—is attained ; and there are other instances where the disease runs a rapid course, and terminates fatally at the end of seven or eight weeks. In such cases it is usually attended with fever, tenderness in the hepatic region, and jaundice. M. Andral relates a case in which death

occurred within three weeks ; in that case there was fever, tenderness, and jaundice, with perceptible enlargement of the tumours from day to day till death took place. As a rule the medullary form of cancer is characterized by a rapid course : the scirrhotic form by a slow course : the termination in any case is always fatal, as no one has yet succeeded in proving beyond doubt, a single instance of a radical cure. Our prognosis, therefore, in all cases must be a gloomy one : in the soft cancer it runs a rapid course to a fatal termination ; in those hard cancers which grow slowly much may be done, by appropriate means, to prolong life for some years, and make that life bearable.

SYMPTOMATOLOGY.—The clinical history of cancer of the liver varies considerably ; there are in many cases certain prominent “landmarks” which seldom fail us in diagnosing the disease ; and there are on the other hand, many cases so very obscure as to baffle the skill of the most acute observer. Cases of this kind are not unfrequently met with where all signs of hepatic disease are wanting, where symptoms of an *undefined* character constitute its leading characteristics—namely, indigestion, flatulence, constipation, together with a disordered condition of the nervous system—a group of symptoms often looked upon as simply “hypochondriasis ;” and it is not till grave symptoms arise, terminating in death, that we are able to discover the cause which led to a fatal issue. In other cases we have consecutive diseases, such as chronic peritonitis, ascites, and pleurisy, all of which may mask the fundamental disease. Again, in other cases, there are derangements proceeding from the primary diseases, to which the liver affection is

but secondary, which may engage the exclusive attention of the physician, and cause the disease going on in the liver to be entirely overlooked. Still these are exceptional cases, and in the main we encounter a group of symptoms so clear and characteristic, as to lead us without doubt or hesitation to a correct diagnosis. We will review these symptoms under the following heads :—

1. DYSPEPSIA.—Many of the symptoms of cancer of the stomach are observed in cancer of the liver. The reason of this is tolerably clear, as the stomach and intestines are themselves very often implicated in the mischief; and as a rule the gastric as well as the intestinal functions are much deranged in cases of hepatic cancer.

There is frequent eructation of air more or less foetid. There is an impaired appetite, followed by a sensation of fulness and uneasiness in the epigastric and hepatic region after each meal.

There is obstinate constipation, which sometimes changes into a diarrhoea of a very offensive character; and in the advanced stage the stools evince a deficiency of bile, are clay-coloured, and attended with a considerable amount of flatus, at other times dysenteric stools and bleeding piles.

There is vomiting of a glairy mucus, bloody matters, or, the food.

There is a gradual emaciation of the whole frame, with an equally gradual loss of strength.

There is excessive depression of spirits and moroseness of temper. There is a pale and earth-coloured tint of the countenance, with a light straw-coloured

discoloration of the skin, which in the advanced stage becomes of a citron-yellow, or olive-green, and dry like parchment. The respiration becomes more or less impeded, dependent on a participation of the diaphragm in the cancerous degeneration distention of the abdomen, or pleurisy of the right side.

There may be jaundice, but this is not a constant symptom, unless the position of the tumours are such as to implicate the large bile-ducts. If the jaundice attains a considerable degree of intensity, we may fairly infer that a cancerous tumour has become developed in the fissure of the liver between this and the duodenum in such a way as to obstruct the flow of bile. There is one peculiarity in the jaundice dependent upon hepatic cancer which is worthy of note—whether slight or severe it never disappears, but continues to the close of the scene.

ASCITES.—Cancer of the liver may give rise to effusion of water into the peritoneal cavity in various ways; when slight in amount the accumulation of fluid appears to result from chronic peritonitis; when abundant, from pressure of the large venous trunks. The water sometimes accumulates to such an extent as to demand tapping in order to relieve the distressing breathing it incurs. As regards the frequency of ascites, in the thirty-one cases recorded by Frerichs, he found the peritoneum contained a large quantity of water in 18: five times it consisted of pure serum—eight times serum and fibrinous flakes—four times bloody fluid, and once pure blood. Of sixty cases recorded by others, dropsy was present in thirty, absent in nineteen, and no record of the

remaining eleven. Towards the close of life there is dropsy in the lower extremities as well as ascites; the progress of the accumulation varies considerably: occasionally the anasarca of the lower extremities and the ascites increase equally and gradually; at other times the former proceeds more slowly than the latter, and in others again the ascites arrives at its utmost extent without much œdema of even the ankles. In many cases there is much vacillation in the course of each, the one increasing, the other diminishing, or either or both experiencing a sudden aggravation, and rapidly reaching its acme. In dropsy from cancer of the liver there is seldom any effusion into the serous cavities of the chest or head. But as ascites reaches the utmost, the breathing becomes short, urgent, and distressing, palpitation of the heart, and faintness on the slightest exertion: these symptoms arise owing to the diaphragm being carried high up into the thorax by the enlarged liver and accumulation of fluid. During the last few days there is a distressing hiccup—profuse sweating, a slight or low delirium; towards night there is a rapid panting for breath, aphthæ of the mouth, a small and quick pulse, extreme weakness, distressing nausea, or retchings, colliquative diarrhea, and the patient at last sinks into the bed and dies from sheer exhaustion.

URINE.—From the careful researches of MM. Becquerel and Walshe there is nothing very peculiar to be found in the urine of those suffering from cancer of the liver, beyond the fact, that where cancer is attended with symptoms of inflammation, the urine is high-coloured, contains a deficient quantity of water, has an excess

of lithic acid and lithates which are almost always pinkish. When general cachexia has fully set in, and the patient is exhausted by insufficient nourishment and repeated loss of blood, the urine acquires the *anæmic* character as described by M. Becquerel; and it has been shown by the same observer that all serious organic affections of the liver are attended by *febrile* urine; cancer of this organ only obeys the general law, whilst the change does not become established till an advanced period of the disease.

THE LIVER.—The last and most important group of symptoms which I shall now have to refer to, are the peculiar characters presented by the liver when invaded by cancer. I have already said that the early symptoms are obscure, and refer chiefly to signs which may easily be confounded with indigestion, or a mild form of hypochondriasis. After these ailments, however, have lasted for some time, the medical attendant, or perhaps the patient himself discovers that the region of the liver is larger or fuller than usual, and that there is more or less pain and tenderness on pressure.

The surface and margins of this fulness, or swelling, are in exceptional cases smooth, but in by far the majority of cases are covered with large or small hard nodules. With these symptoms are not unfrequently associated jaundice, ascites, and a puffiness of the lower limbs, particularly round the ankles. These symptoms from time to time undergo aggravation; the pains become more acute, and shoot up between the shoulders; the abdominal walls become tense. The breathing is distressed, the skin is hot and dry, and the pulse is quick. These symptoms, and a repetition of such,

indicate an increased and rapid growth of the cancerous tumours. To sum up, cancer of the liver is marked by—

1. All grades of enlargement of the organ, sometimes so large as to fill up the greater portion of the abdominal cavity.

2. The surface is studded with nodulated protuberances which are easily felt by the hand : and the bounderries of the organ may be marked by palpation and percussion.

3. The enlargement of the organ is constantly proressive ; and in the soft and vascular variety so rapid, that an increase in size may be clearly distinguished week by week.

4. It is attended by tenderness and more or less pain.

5. It is attended by jaundice, ascites, and more or less œdema of the legs. And it is—

6. Attended from the commencement, which continues through its whole course, by a train of dyspeptic symptoms, irregularity of the bowels, a gradual wasting, a gradual loss of energy, and a pale pasty, cadaverous look.

PROGNOSIS.—From the nature and character of cancer, our prognosis, under the most favourable circumstances, cannot be otherwise than of a very gloomy nature, and it is only in the case of hard cancers, which grow slowly, that we are able to give one ray of hope, that by a carefully selected diet, a judiciously selected residence, and appropriate medical treatment, life may be prolonged for some years.

DIAGNOSIS.—The recognition of cancer of the liver may be extremely simple, or almost impossible. Where great enlargement of the organ exists, and where this enlargement may be felt to depend on the presence of

nodular masses of various size, where there exist pain in the hepatic region, jaundice, ascites, emaciation, and great digestive disturbances, and where the individual is of advanced age, there can scarcely be any doubt entertained as to the presence of cancer in the liver. On the other hand, where not one of these symptoms exists, where the disease is almost latent, the existence of cancer obviously may not be suspected, much less substantiated.

DISEASES WHICH MAY BE CONFOUNDED WITH CANCER.—There are several diseases incidental to the liver and other organs of the body, which, to a casual observer, may be mistaken for cancer of that organ. Among these may be set down—

THE WAXY LIVER.—Here there is the same increase in size, but it must be borne in mind that in cancer the surface is studded with nodules, in the waxy liver it is smooth, and attended with enlarged spleen, albuminuria, caries, or necrosis.

THE syphilitic liver; the tight-laced liver; hydatids; abscesses in the liver; dilatation of the bile-ducts and gall-bladder; cancer of the omentum, stomach, and right kidney; and large accumulations of faeces in the transverse colon.

TREATMENT.

ALLOPATHICALLY.—I now approach the most important section of this paper—namely, the treatment of hepatic cancer. Would that I could endorse the extravagant pretensions, the dishonourable and dishonest assertions made by a section of our profession; “who, ‘parasite-like,’ cling to the aged tree, and from

beneath its venerated branches, which now extend to every quarter of the globe, palm upon the public their worthless nostrums, and extort from the timid and unwary fabulous sums of money." under the plea that cancer is a curable disease, and as such is as amenable to treatment as any common disorder. What glorious news this would be to suffering humanity ! But such is not the case. Cancer has remained as the " opprobrium medicorum " from the far-off epoch of Hippocrates to the present time ; remedies innumerable have been suggested, tried, and found wanting ; hospitals have been established, and the wards of others have been richly endowed for the special treatment of this dire pest of mortality ; and fabulous sums have been offered by many a victim to any man, who could discover a remedy that would grapple successfully with this hydra-headed monster. No talismanic wand has yet revealed to man the grand specific : it still nestles in the mysterious womb of nature. The various honest authors who have written on this subject dismiss it with but a few passing remarks. The treatment of these organic diseases of the liver, says Guy, is simply palliative ; the treatment of cancer of the liver, says Walshe, should be generally conducted as that of cancer of the stomach ; and it has appeared to that author that the progress of the affection has been stayed by a liberal inunction of the iodide of lead ointment over the hepatic region and the internal administration of liquor potassæ in infusion of taraxacum. The treatment of malignant diseases of the liver, says Budd, should be simply palliative ; practitioners have hoped to destroy cancerous tumours by some powerful alterative, or at all

events to check their growth ; for that purpose alkalies, mercury, arsenic, and iodine have been tried but signally failed. The treatment of cancer of the liver, says Murchison, must be entirely palliative. Mercury, iodine, arsenic, and the *sanguinaria canadensis*, have proved worse than useless. The attempts, says Frerichs, which were formerly made, and continue to be made at the present day, to cure cancer of the liver by means of the preparations of iodine, mercury, and arsenic, and the waters of Karlsbad, are very objectionable ; and hasten the advent of death by many months, or even years. *Conium* was recommended by Hahnemann ; *belladonna*, by Alberti ; the muriate of baryta, by Hufeland ; *aconite*, by Greding ; *digitalis*, by Mayer ; corrosive sublimate, by Ruysch ; *mezereon*, by Home ; the *solanum nigrum*, as far back as the Arabian era of medicine, and the various preparations of iron by Carmichael.

HOMOEOPATHICALLY.—Although we are unable to boast of possessing any specific drug that will attack and destroy the cancer germ, nevertheless we are able to do much, to control symptoms, subdue pain, and prolong life. Having ascertained the real nature of the case, every measure of a debilitating nature should be strictly avoided.

The pains which attend the development of cancer and when the peritoneal covering becomes implicated should be met by *Aconite*, *Bell.*, and *Bry.* : warm fomentations, cataplasms, and warm baths. To grapple with the cancer germ, *Ars.*, *Merc. iod.*, and *Phosph.* are well worthy of a fair and prolonged trial ; and should the stomach become implicated, the *Arg. nit.* and *Nux. vom.* will prove valuable agents.

In a case of cancer of the stomach, which I repeatedly saw in consultation with my valued friend Dr. Tuckey, late of Canterbury, *Nux vom.* invariably came to the rescue, and gave more durable relief than any of the remedies previously selected.

To moderate the derangements of digestion, and check the nausea and vomiting which frequently accompany such derangements, *Nux vom.* here again will prove a trusty friend, coupled with an occasional dose of *Ipecac.* or *Kreasote.*

To correct acidity and eructation of foetid gas, *Arnica.*, *Carbo veg.*, *Acid. ac.*, *Acid. n.*, *Acid. hydrocy.*, and *Pulsatilla* will give us material help, with a weak solution of Carbolic acid, or that innocent but effective disinfectant, the Terebene.

The functions of the bowels, when costive, are to be regulated by *Lycopod.*, *Podoph. p.*, *Lept.*, *Nux. Vom.*, or *Sulphur*; and when too relaxed, by *Ars.*, *Phos.*, *Ac.*, *Verat.*, *Alb.* or *Gallie acid.*

Dropsical effusions are to be subdued, if not entirely removed, by *Ars.*, *Acid. n.*, *China*, *Copaiba*, and *Digitalis*, particularly if the heart becomes implicated, functionally, or organically; with a series of Turkish or vapour baths; and in cases of great emergency, by the ordinary surgical mode of tapping.

The general debility and wasting (Cachexia), which is wont to accompany the progress of hepatic cancer from its early stage to its closing scene, is best opposed by means of a light, bland, nutritious diet: animal food both plain and in a concentrated form; milk and cream, raw eggs, cocoa or chocolate; oatmeal porridge, to which may be added a teaspoonful of lentil powder;

Vichy or soda-water; Wenham Lake ice; filtered, distilled, or cold boiled water, with a fair allowance of a generous Burgundy, or the Ofner Auslese of Hungary.

The general anæmia and impoverished condition of the blood must be enriched by the various preparations of iron,—the Iodide, Lactate, Ammonio-citrate, Phosphate, and my own preparation, “the Ferr. Ammo-citrate cum Strych. c. Quinæ c. Dig.” cod-liver oil; when this causes nausea, I have prescribed my compound combined with cocoa-nut oil with very favourable results, with pepsine or pancreatine, or Parrish’s chemical food; and a resort to the chalybeate waters of Tunbridge Wells; the bromo-iodated saline of Purton, and those of Woodhall, in Lincolnshire; or the chalybeate waters of Pyrmont and Franzensbad, on the Continent.

When haemorrhages threaten to prove exhausting—which we generally find in the latter stages of the complaint—we must endeavour to check them by means of *Gallic acid*, *Tannin*, *Alum*, *Hamamelis*, or *Sulphur*, the latter having proved eminently successful in three cases of cancer with haemorrhagic complications which have come under my notice.

CHAPTER XIV.

GALL-STONES.

GALL-STONES are usually formed in the gall-bladder, where the bile becomes concentrated from the absorption of the watery portion of the fluid; but it sometimes happens that gall-stones form in the substance of the liver, and in branches of the hepatic duct. These hepatic stones are very small, irregular in form, of a dark olive or black colour, and chiefly composed of solid biliary matter.

HISTORICALLY.—There is no correct account extant of gall-stones having been observed anterior to the fifteenth century, when they were first noticed by Johann Kentmann, of Dresden, who communicated his discovery to Gressner, who made use of them to adorn his work on fossils. About the same time a similar discovery was made by Vesalius, Fallopius, Fernel, and Glisson, who contributed valuable additions to the history of these concretions.

As regards the early pathology, diagnosis, and treatment of gall-stones, we owe much to the researches of Hoffmann, Morgagni, Boerhaave, and Sydenham. For the first chemical examination of gall-stones we are indebted to Galeatti, 1748; and for the first accurate description of the structure of gall-stones to F. A. Walter, 1796.

CHEMICALLY.—The number of substances entering into the formation of gall-stones are numerous. The most important are as follows :—

1. CHOLESTERINE.—This substance is but seldom absent, and forms the principal constituent of biliary concretions. It is found in a crystalline form, and mixed with fatty and saponaceous substances. It is estimated that gall-stones contain from 70 to 80 per cent. of this substance, which in this respect bears a similar relation to these stones as uric acid does to stones found in the bladder.

2. BILE PIGMENT, which is found more or less in all gall-stones.

3. CHOLEPYRRHIN.—This substance is either found in a pure state or combined with lime; it goes to form the nuclei, the shell, and outer crust of the gall-stones. When treated with chloroform the cholepyrrhin dissolves, and separates, and on evaporation crystallizes in the form of needles, prisms, and lamine, of a yellowish brown or garnet-red colour.

4. CHOLEPYRRHIN and lime.—This compound is found in most gall-stones; in colour it is yellowish red, and deposited in the form of layers of granules, or scales, between the lamine of the stones.

5. CHOLECHLORIN.—This is a green pigment—found but sparingly in gall-stones—when separated from the other substances, and submitted to alcohol, it presents a beautiful grass-green colour.

6. Biliary acids and calcareous salts.

7. Bile pigments.

8. Glycocholate of lime, found in the ox as well as in man.

9. Cholate of lime, found in the gall-stones of many ruminants, as well as man.

10. Free fatty acids, a compound of fatty acids and lime, mucus, epithelium, and uric acid.

11. Inorganic Metallic Matters.—Iron, manganese, copper, and earthy matters, such as the carbonates, phosphates, potass, and soda have been found in varied quantities in the human gall-stone.

Ordinary gall-stones are composed, as we have seen, of cholesterine, which, with variable proportions of colouring matter, is deposited around a nucleus which generally consists of biliary matter, more or less altered with other properties. The cholesterine crystallizes so as to form rays converging from all points of the circumference of the stone to its centre; but when it is mixed with, or stained by, the colouring matters of bile, which, as usual, are in different proportioned layers successively deposited, the stone, while it still exhibits the converging rays, appears to be made up of distinct concentric laminæ. Two circumstances then seem generally to concur in the formation of these cholesterine stones:—the presence of a small mass of concrete biliary matter, or of some other substance, to serve as a nucleus; and the presence of cholesterine in crystals to make up the body of the stones. The first step then, is the formation of the nucleus, which probably results in most cases, especially when many gall-stones are formed together, from the peculiar principles of the bile being in an abnormal condition, and more than unusually insoluble. The second step is the formation of crystals of cholesterine, which, like the former, results from faulty assimilation, and which is frequently asso-

ciated with fatty degeneration of the coats of the gall-bladder, if not indeed immediately dependent upon it. It may, therefore, be set down as a rule that the presence of a gall-stone is direct evidence of an unnatural condition of the bile; and the question now arises, what condition of life, or what other influences, tend to bring about those unhealthy conditions of the bile on which the formation of gall-stones so clearly depends? There are some structural diseases of the liver, where gall-stones are seldom or never found, namely, the cirrhosis, or gin-drinker's liver, and those affected with tropical abscess. The disease of the liver in which gall-stones are most frequent is cancer and consumption. Gall-stones are also frequently found in conjunction with cancer of other organs of the body.

CHARACTERS OF GALL-STONES.—A solitary stone is but seldom found in the gall-bladder; in most cases they occur in large numbers, varying from 5 or 10 to 1,000, or more. I once found in the gall-bladder of a young man of twenty-two, who died of consumption, 31 stones of many forms, which, when put together formed a very elegant little pyramid; these were exhibited at a meeting of the B. H. S. some few years since.

Morgagni mentions a case where 3,000 stones were found in the gall-bladder; Hoffmann counted 3,646 in another; and Otto counted 7,802 stones which are preserved in his pathological museum in Berlin. Frerichs, found in the gall-bladder of a woman aged sixty, who died under his care at Breslau, 1,950 calculi. In size gall-stones vary from a millet seed to a hen's egg, or even larger; in form they are primarily globular, but when many congregate together they become altered in form.

Dr. J. V. Shoemaker, in the *Philadelphia Medical Times*, relates the particulars of a case of gall-stones in which 1,940 stones were found impacted in the gall-bladder after death.

Age.—The tendency to the formation of gall-stones is influenced considerably by age. In youth they appear but seldom: Bouisson, however, found in the gall-bladder of a newly-born infant three stones; Cruveilheir several in children during the first year of life; Frerichs in a girl of seven years, who died of waxy degeneration of the liver, spleen and kidneys consequent on disease of the hip joint. The tendency, however, to gall-stones increases with the advance of life, for of 395 cases collected by Hein, there were only fifteen persons under twenty-five; and three under twenty. Of ninety-one cases collected by Walter, we have the following:—

At 20 years of age there was		1 case
From 30 to 40	...	27 "
" 40 to 50	...	14 "
" 50 to 60	...	19 "
" 60 to 70	...	8 "
" 70 to 80	...	13 "
" 80	...	1 "
" 90	...	1 "

The ages of the remaining 7 are not mentioned.

Sex.—It is calculated that women are more prone to gall-stones than men. Budd and Prout maintain that they are as 4 or 5 to 1; this, to a great extent, has been confirmed by others. Out of 620 cases collected by Hein, he ascertained that 377 were females and 243 were males, making a difference of nearly 3 to 2. The greater

liability of women to gall-stones depends, perhaps not so much on the constitution of the sex, as on their mode of life which varies considerably in different countries.

CAUSES.—There are certain changes in the liver and biliary passages which, interfering with the normal excretion of bile, may favour the development of gall-stones. Under this head may be mentioned cancer of the liver, or gall-bladder; adhesions of the gall-bladder to adjacent parts; repeated attacks of catarrh of the mucus membrane of the gall-bladder; general torpidity of the liver, with a deficiency in the peristaltic action of the gall-bladder; a sacculated condition of the gall-bladder, whereby a portion of the bile is retained for an indefinite period, when it becomes altered in character and reduced to that consistency capable of acting as a nucleus for the deposit of the cholesterine. The sedentary habits of women in this country, and the sedentary habits of many men, undoubtedly tend to retard the normal excretion of bile. Hence Tissot ranks gall-stones among the diseases of men of letters; Sömmering among incarcerated prisoners; the same cause holds good in animals, as Glisson observed that cows are more liable to suffer from gall-stones when tied up during the winter months than when at pasture during the summer. For the same reason, they are not unfrequently developed after protracted confinement to bed from illness.

DIET.—A particular mode of living, which directly alters the properties of the biliary fluid, exercises considerable influence in developing gall-stones. Hence, calculi are more frequently met with in persons of full habit, who eat largely of animal food, rich dishes, and

lead indolent lives, than those who lead an active life and live sparingly.

DIATHESIS.—Differences of opinion exist as to whether there is any peculiar idiosyncrasy of constitution necessary for the development of gall-stones. Frerichs says: "No calculous diathesis, arising from abnormal states of the metamorphosis of matter, such as lead to the formation of urinary calculi, can be discovered in the case of gall-stones. They are met with in the most different constitutions, and are more dependent upon local than upon general derangements." Budd says, "there can be no doubt that a liability to gall-stones often depends on peculiarity of constitution, which, like the tendency to gout, or gravel, may be inherited as well as acquired." At present little is known of the characters, or of the other effects, of this diathesis. It, however, most probably leads to fatty degeneration of the coats of the gall-bladder, which is so often associated with gall stones; and, perhaps, also to fatty degeneration of the arteries, so common in advanced life. Prout noticed that a tendency to the formation of gall-stones of cholesterine is frequently allied with a tendency to lithic-acid deposits in the urine; and it is more than probable that, in London and other large towns, the habit of drinking heavy malt liquor, which frequently leads to lithic-acid deposits, and to the most inveterate forms of gout and rheumatism, in persons who inherit no disposition to them, may also frequently lead to the formation of gall-stones.

"SITUATION OF GALL-STONES, AND THEIR PATHOLOGICAL CONSEQUENCES."—Gall-stones are formed and

found in any part of the liver where bile is secreted ; they are consequently erratic in their movements, in their endeavour, so to speak, to take their departure from the body.

1. Gall-stones may form in the radicles of the hepatic duct, in the interior of the liver; they are here very small and numerous, and constitute what has been generally called "biliary gravel." Chopart met with a case where the liver contained so many concretions, that it could not be cut with a scalpel. These concretions sometimes cause ulceration of the ducts : a series of small abscesses, obliteration, and dilatation of the bile-ducts.

2. Gall-stones may become arrested in the hepatic duct. When this takes place, the immediate consequence is an obstruction to the flow of bile, extending over the whole of the ducts within the liver, followed by enlargement of the liver, jaundice, vomiting, colic and other symptoms indicative of obstruction of the common duct. Wolf records a case of this kind, which gave rise to violent colic and rupture of the hepatic duct, terminating in death.

3. Gall-stones are found most frequently, of a larger size, and in greater numbers in the gall-bladder, than in any other portion of the biliary passages. This organ seems to be the central dépôt for the manufacture of these concretions, from whence the various derangements they give rise to usually proceed. Gall-stones may exist in the bladder for a considerable length of time without giving rise to any marked symptoms. I once found over thirty stones (some of them as large as small marbles) in the gall-bladder of a young man whodied of consumption,

which gave him no inconvenience during life. While stationary in the bladder they give rise to no marked symptoms unless they are so large and numerous as to distend the viscus, when they give rise to a sense of weight, uneasiness, tension, or a dragging pain in the region of the gall-bladder, which extends through to the right shoulder blade, and even to the right arm. The pain is usually worse after meals, violent muscular exertion, riding or driving over rough roads. Gall-stones, when located in the bladder for some time, give rise to considerable irritation of the mucous membrane, followed by ulceration which may terminate in perforation. Moreover diphtheritic exudations, purulent fluid, hypertrophy, adhesions between the bladder and pylorus, duodenum, colon and abdominal walls sometimes result from concretions in the gall-bladder. When the gall-bladder is occupied by a solitary stone, it is usually large, oval, and smooth, the mucous membrane is likewise smooth, and not ulcerated.

4. Gall-stones become arrested in the neck of the cystic duct, and in the ductus communis choledochus. When a stone passes from the gall-bladder into the neck of the cystic duct, it usually gives rise to vomiting, and colic, and as long as it does not advance beyond that spot, there is no jaundice. Sometimes the stone will roll back into the bladder, when all unpleasant and painful symptoms disappear; at other times it becomes firmly fixed in the duct, where it sets up inflammation and suppuration, followed by gangrene of the coats of the gall-bladder, with an escape of bile into the abdominal cavity.

5. Gall-stones may become arrested in the common

duct, this in fact is one of their most common situations. The passage of a stone through the cystic duct gives rise to vomiting and severe colic only ; but when it enters the common duct, we have jaundice ; when it passes along the common duct the severity of the pain abates ; but returns again with great severity while passing through the narrow opening into the duodenum, when the pain immediately ceases, as if by enchantment. Now and then the common duct is found to be the receptacle for a large number of calculi. Cruveilhier and Morgagni record some cases where the gall-bladder was dilated to the size of the stomachs, which were found filled with calculi. Frerichs also has met with similar cases.

There are various other channels through which gall-stones may make their exit from the liver and its appendages ; they are, however, artificial, consequently revulsive to nature's laws. To obtain this object, however, fistular openings are manufactured by the stones, by a process of irritation, inflammation, adhesion, ulceration and finally perforation. By this mode gall-stones find their way into the stomach and duodenum, into the transvers colon, into the peritoneum ; and outwards through the skin, into the abdominal cavity, into the urinary passages, into the vagina, and into the portal vein. The majority of gall-stones which pass into the intestines through the ordinary channels make their way along the small and large intestines and are expelled with the faeces without creating any unpleasant symptoms ; but it sometimes happens that a stone becomes firmly impacted in some portion of the small intestine : when this accident occurs the intestine above the

obstruction is greatly distended, and below empty. There is obstinate constipation and vomiting first of food, then of bile, and afterwards of stercoaceous matter ; there is pain and tenderness of the abdomen, and other prominent symptoms of peritonitis, which continues till death, or until the stone makes its exit into the large intestine.

SYMPTOMATOLOGY.—In considering the symptoms arising from the presence of gall-stones in the liver, I shall review them under the following heads :—

1. Those which arise from the presence of concretions in the substance of the liver, and in the radicles of the hepatic duct.
2. Those which arise from the presence of stones in the gall-bladder.
3. Those which arise from the presence of stones in the cystic duct.
4. And those which arise from the presence of stones in the common duct—the *ductus communis choledochus*.

(a) The symptoms appertaining to the first are as a rule of air obscure and indefinite character ; the smallness of the concretions, and the depth of the substance wherein found, accounts for this obscurity in a great measure. They consist of dull pains in the liver, which sometimes extend upwards to the shoulder-blade and downwards to the lumber region, and over the greater portion of the abdominal region ; there is more or, less stomach derangement, easily aggravated by slight errors in diet, which give rise to nausea, retching, and vomiting, with pains in the right hypochondrium. At other times severe attacks of rigors set in, followed by heat and perspiration. These, in the absence of jaundice and other hepatic symptoms have led many to view the

case as one of intermittent fever ; indeed, the eminent Frerichs himself frankly acknowledges having fallen into this error by treating a case of this kind for some months with Quinine, whilst a "post-mortem" revealed numerous calculi about the size of a bean lying in the hepatic duct.

(b) Numerous calculi may be present in the gall-bladder for a length of time without producing any morbid derangements, particularly if the concretions be small and smooth on the surface. If the concretions are large and numerous, they tend to set up a catarrhal or plastic inflammation, with pains of a dull or pinching character about the epigastrium, which extend to the right shoulder, lumber region, and hip. The gall-bladder becomes distended, is easily mapped out by palpation, and, if the concretions are large, they may be clearly recognised both by manipulation, the naked ear, or the stethoscope, when a grating or rattling noise may be distinctly heard. The appetite becomes impaired, there is indigestion and constipation, but there is no jaundice. These symptoms are not always present ; there may be a total cessation of all signs, but they are particularly apt to supervene after great exertion, riding, driving over rough roads, and excesses in diet. They however disappear to a very great extent under the influence of rest in the recumbent posture.

(c) When stones of any size leave the gall-bladder and enter the cystic duct, they cause a group of well-marked and severe symptoms, known as HEPATIC, BILIARY, or GALLSTONE COLIC. These symptoms usually commence about two or three hours after a meal, or about the time that the contents of the gall-

bladder are poured into the duodenum, simultaneously with the entrance of the chyle from the stomach, where the second process of digestion takes place. It is more than probable that many a small stone has at this moment been carried by the rush of bile through the cystic duct into the common duct, and from thence into the duodenum, without causing any marked pain or inconvenience. With larger stones the case is different, for as soon as a calculus is forced into the cystic duct, pains are complained of at the margin of the liver and epigastrium, accompanied by nausea, retching, and vomiting, with constipation and flatulence. These pains are very severe—indeed excruciating—and have been described to me as,—first, aching, then bruising, then boring, then burning, then sharp piercing, ulcerating, and tearing, with a pitiable expression that something were being torn to shreds in the stomach. In irritable persons there is great restlessness, cramps, and convulsions; in the weakly, they become faint and delirious. The severity and duration of the colic varies according to the size, hardness and roughness of the concretions; it may pass off in a few hours, or it may continue for many days. In the latter case it comes off and on in paroxysms, and is attended with rigors, heats, and sweats; this continues till the duct is sufficiently dilated to allow of the passage of the stone. A calculus, after entering the cystic duct, may return into the bladder; it may roll back like the small pebbles with the receding wave on the sea-shore; at other times it becomes firmly impacted, and hermetically seals the neck of the bladder, which is often followed by serious mischief, jaundice, and even death.

(d) The entrance of a calculus into the common duct is marked by symptoms of a milder character than those produced in the cystic duct. This is accounted for by the larger size of the canal. The pain however, is very severe when the concretion reaches and passes through the abdominal opening. If the common duct be long occluded, jaundice appears ; if the obstruction continues, or becomes permanent, jaundice increases, the liver enlarges, the gall-bladder becomes distended, and sooner or later death ensues, unless the stone passes into the bowel, or forms for itself one of those fistular openings I have already described, and makes its escape either into the intestinal canal, or through the walls of the abdominal cavity.

TREATMENT.

ALLOPATHIC.—For the relief of biliary colic, opium, morphia, chloroform, Indian hemp, Belladonna, and ether, with copious draughts of hot water containing bicarbonate of soda, have by various authors been recommended as internal remedies. The external remedies consist of fomentations of poppy heads and chamomile flowers ; linseed meal poultices ; opium and Belladonna poultices ; hot water, vapour, or hot air baths ; opium and tobacco enemata ; the sucking of ice, and bags of ice to the seat of pain. For the expulsion of the calculus from the alimentary canal,—castor oil, seidlitz powders, phosphate of soda and aloes, colocynth and hyoscyamus, sulphate and phosphate of soda, infusion of senna with calomel and scammony ; such is the formidable *armamentaria* of allopathy.

HOMŒOPATHIC.—In the treatment of gall-stones there are two main points to be observed.

The first is to calm as far as able the excruciating pain and spasm while the stone is forcing its way through the canal.

The second is to disperse the concretions still remaining in the biliary passages, and to prevent as far as possible the manufacture of fresh stones and their re-accumulation in the liver.

The first object will be best attained by placing our patient in a warm bath, where he should remain till he borders on syncope ; the administration of Aconite 3x every half-hour, and a hot compress, sprinkled over with the Tincture of Aconite in the matrix form, should be applied, and kept on over the seat of pain for some hours, or until relief follows. Belladonna is another remedy which covers many of the symptoms of biliary colic ; it calms the spasmodic tension, the cramp-like constrictive pain, and the gripping, tearing pain, which mark its most prominent symptoms. Nux Vom. is another remedy which has afforded me valuable help in the treatment of gall-stones. The venerable Hempel, in describing the properties of this drug as a remedy in biliary colic, says “a philosophical view of the nature of the case will assist us in making up our minds as to what will be an adequate dose in the case before us.

The irritation caused by the friction of the calculus against the side of the duct induces spasmodic constrictions, which resist the passage of the concretion, and render the irritation so much more excruciatingly painful. It is this spasm that we have to relieve. How much medicine does it take to accomplish this ? Any more

than is required to relax the spasm in strangulated hernia? We relieve this spasm by means of the 3rd, 6th, or even higher potencies; then why not spasm of the gall-ducts? Irrespective of the homœopathicity of Nux Vom. to biliary colic, it corrects dyspeptic symptoms, it cleanses the foul tongue, disperses flatulence, subdues nausea, dispels vomiting, and acts as a potent aperient. There should be no hesitation about the dose, no coquetting with the 30th or 100th dilution, but it should be administered in one, two, or even three drops of the tincture, and repeated at short intervals. Dr. Drury has recommended Calcarea Carbonica in the 30th dilution as a gall-stone expeller; I have tested that preparation in two cases, and signally failed to produce any effect whatever; the Lycopodium Clavatum, however, came to the rescue, and gave me very valuable assistance. It was delightful to watch the soothing influence which the club-moss or wolf's-claw exercised over the spasmodic paroxysms which affected my patients.

Lycopodium has been used with marked success in spasmodic stricture of the urethra; in the strangury of children during dentition, and in the spasmodic stricture of grown-up people, depending upon the presence of gravel or pus in the urinary passages. It is the potent effect which this drug exercises over spasm of the urinary passages that first induced me to test it in spasmodic stricture of the cystic and common biliary ducts. When the calculus or calculi have been kicked out of the common duct into the intestines, they should be compelled without delay to move on; this is effectually accomplished by a dose of castor oil, or one or two seidlitz powders, followed by a breakfast-cupful or two of warm tea.

After the removal of the calculi, the alleviation of pain, and restoration of the functions of the stomach and bowels, are best accomplished by *Nux Vom.* and *China*, combined with plenty of out-door exercise, a bland but generous diet, and the use of the Friedrichshall, the Seidschutz, or the Pulna waters, we must at the same time proceed to grapple with the second object in view, viz., to rid the system of the remaining concretions, and prevent the manufacture of fresh ones.

ALLOPATHIC TREATMENT.—Remedies for dissolving gall-stones have in all ages been suggested and sought after. Hoffmann believed he had discovered the "specific" in the "fixed alkalies;" Bianchi and Van Swieten condemned them as useless. Durandi extolled the compound sulphuric ether and oil of turpentine; Sönmering, ether with the yolk of egg; and Duparcque, ether with castor oil. These remedies have in turn been condemned by Thénard, Frerichs, Murchison, and Tanner as worthless. Frerichs thinks that a very alkaline solution of BILE may dissolve the cholesterine, and the compound of cholepyrrhin and lime, which are the most important constituents of gall-stones, and which may lead to their mechanical destruction and pulverization.

HOMŒOPATHIC TREATMENT.—The *materia medica* of homœopathy contains many medicines which undoubtedly do act specifically on the secreting functions of the liver, and which tend to prevent that tendency to the manufacture of calculi we are so anxious to avoid. Among these remedies may be prominently mentioned the *Podophyllum Peltatum*, *Leptandra Virginica*, *Iris Versicolor*, *Euonymus Atropurpureus*, *Apocynum Androsæmifolium*, *Taraxacum*, *Mercurius Solubilis*, *Nux Vomica*,

Acidum Nitricum, Acidum Hydrochloricum, both internally and externally, as baths and compresses.

Professor Rutherford and M. Viqual, in the *Journal of Anatomy and Physiology*, give the results of a series of experiments made on the cholagogue action of the Euonymus Atropurpureus, or Wahoo; Sanguinarin, Iridin, Leptandrin; Ipecacuanha, Colocynth, and Jalap. The first four named drugs are rarely or ever prescribed in this country amongst allopaths; but it may be observed that they all stimulate the liver; the first THREE powerfully; the last, however, only feebly. The animals experimented upon were dogs. Ipecacuanha powerfully stimulates the liver; so does Colocynth; so does Jalap.*

Much however, must be done by the patients themselves; for it were futile to lay down a code of rules unless faithfully carried out with unflinching and stoical determination.

The indolent and high liver should take active exercise, either in boating, tennis, or a daily ride on a rough trotting cob, and moderate his sumptuous repasts; he should dig in his garden, or imitate Gladstone, by becoming a woodman and a feller of timber.

The wealthy merchant who daily drives in to his City office from his suburban retreat, or takes his seat on the downy couch of a Pulman's drawing-room car, and in the hurry-skurry anxiety of business, too often neglects his mid-day chop, not however, the City banquets, where, with an empty stomach, and a jaded brain, he partakes of all sorts of indigestible dishes and adulterated wines, which derange the stomach, congests

* "Action of Drugs on the Biliary Secretion," *Lancet*, Feb. 10, 1876.

the liver, paralyses its secreting and excreting functions, and lays the foundation for biliary concretions,—to such I would suggest a morning trot on the bay cob round his domain. No Cambridge sausages, grilled kidneys, Melton Mowbray porkpies, devilled turkey and *patés de foie gras*, for breakfast; but a basin of fresh milk, oatmeal porridge, and well-made brown bread, with a dash of lentil in it. And for a change, a mutton chop, with claret diluted with soda, seltzer, Vichy, or the Apollinaris water. The hours for meals should be as regular and as strictly observed as the hours for business. At 12 A.M. he should partake of a well grilled chop, rump steak, or the leg of a fowl with a fair quantity of green vegetables—which cannot be too green,—spinach, turnip tops, young nettle tops, cabbage or Brussels sprouts, with a glass of burgundy, sauterne, or somlau. All malt liquors should be avoided. The dinner should be light, plain, and easy of digestion, with farinaceous puddings and stewed fruit. To promote the regular action of the liver and the uniform expulsion of bile, he should take a dose of Podophyllum, or Leptandra, two or three times a week; a tumbler-full of cold water night and morning, or the Apollinaris or Vichy water. A cold water compress should be applied over the hypochondriac and epigastric region, and renewed night and morning, for a week or ten days, or until there exists considerable irritation, or the appearance of a crop of pustules on the surface of the skin. The bowels should be regulated by Nux Vom., Podoph., or Lept., and the waters of Carlsbad, Friedrichshall, or Pullna, and the skin by a morning sitz bath, and an occasional Turkish or vapour bath. In addition great benefit will often be derived from

drinking the waters of Karlsbad, Ems, Marianbad, Vichy, or Eger. In choosing these waters Karlsbad and Vichy stand pre-eminent as the most efficacious. Ems is best suited to irritable and debilitated persons suffering from a tendency to diarrhœa; Marianbad is best suited for the plethoric with a tendency to congestion.

MINERAL WATERS.

Their special use in the different forms of diseases of the Liver.

Mineral Waters have been used in medical practice since the days when Æsculapius was worshipped throughout Ancient Greece.

It is recorded that in olden times the practice of medicine was conducted in temples dedicated to that purpose.

Fifty years after the destruction of the kingdom of Priam, there was elevated at Titanus, a city of Peloponnesus, the first temple in honour of Æsculapius. Very soon the worship of this god was spread throughout Greece, whence it passed into Asia, Africa, and Italy. Among a multitude of temples which were consecrated to him, those at Epidaurus, in the Peloponnesus, at Pergamus, in Asia, on the island of Cos, now Cnidus, and at Cyrene, a city of Lybia, are particularly remarkable. In the temple of Epidaurus there was a statue of colossal size, representing the god of medicine, under the figure of an old man seated on a throne, holding in one hand a sceptre, and resting the other on the head of an enormous serpent; a dog, an emblem of vigilance, reposed at his feet. This statue, made of gold and ivory, was the work of Trasymedus. Socrates, in his last discourse with his friends, requested them to offer a cock as a sacrifice for him to Æsculapius,

whence we infer that this bird was sacred to the god of medicine. The temples of the god of medicine—grand and imposing edifices—were generally very salubriously situated, sometimes on the summit of a hill, or the declivity of a mountain; sometimes skirting the sea-shore, and sometimes near to thermal springs, or a fountain of living water. Groves of trees refreshed the sight of the sick, and afforded to them cool and solitary retreats in their beautiful and spacious avenues.

The people came from all quarters on pilgrimages to these sanatoriums, or temples of health, sacred to the god of medicine. The sick and the convalescent found there both agreeable and healthful diversions. The wholesome regimen to which they were subjected, the pure and temperate air they breathed, the faith and hope by which some of them were animated, the miraculous cures that were testified to, as recorded on the tablets which hung on the walls of the temples, all united to affect their minds agreeably, and exercise a happy influence on their constitution.

Beside these hygienic means, the disciples of Æsculapius (Asclepiadæ, as they were called) prescribed gymnastic exercise, walking, riding, sea bathing, and "MINERAL WATERS," which were selected in accordance to the nature and character of the disease. In fact, the hydropathic establishments, the various spas in France, Germany, England, and other parts of the world at the present time are but small and very humble representatives indeed of the grand and colossal temples of ancient Rome and Greece, which were dedicated to the god of health.

The mineral waters best suited for the various dis-

eases of the liver may for convenience, be arranged under the following heads :—

1. Those which are best adapted for functional disorders.
2. Those which are best adapted for chronic disorders, organic diseases, and the deposit of foreign matter in its substance.

For a torpid condition of the liver, with a diminished secretion of bile, a resort should be had to the saline waters of Cheltenham, Leamington, or Llandrindod, in England ; the Seidschutz, Pulna, or Friedrichshall on the Continent.

For the secretion of morbid or altered bile, the waters of the royal spa Cheltenham, Llandrindod, or Karlsbad.

For neuralgia of the liver, the waters of Bath or Buxton.

For jaundice, the waters of Schwalbach, Pyrmont, Karlsbad, Marienbad, Kissingen, Homburg, Vals, Vichy, Ems, Cheltenham, or Llandrindod. All these waters are saline, are very similar in their chemical constituents, and when taken in proper quantities they find their way through the walls of the portal vein, permeate the remotest parts of the liver, and give rise to an abundant secretion of thin healthy bile. They are with difficulty replaced by any other remedies, in those cases of jaundice, which owe their origin to chronic congestion of the liver, a torpid and inactive condition of the organ, with obstinate catarrh of the bile ducts, and mucous membrane of the stomach and duodenum, to gall-stones, &c., Their selection however, must at all times be determined by the nature of the cause of the complaint, and by the temperament of each individual patient. It

should also be borne in mind that the continuous use of these waters is prejudicial in the case of new growths, as the different forms of cancer, cirrhosis, and other profound degenerations of the gland.

For chronic atrophy of the liver (cirrhosis), the waters of Cheltenham, Leamington, Llandrindod, Eger, Karlsbad, Vichy, or Vals; and when complicated with syphilis, the waters of Kreuznach, Carlsbad, and Friedrichshall.

For waxy liver, the waters of Woodhall, in Lincolnshire, and Purton, in Wiltshire, and Aix-la-Chapelle.

For fatty liver, the waters of Builth, Cheltenham, Llandrindod and Leamington, and Carslbad, Marienbad, Kissingen, Ems, and Vichy.

For hypertrophy of the liver and general obesity, the waters of Builth, Llandrindod, or Pulna.

For gall-stones, after the calculi have passed and the pain has been alleviated, the *Bitter wassers* of Friedrichshall, Seidschutz, Pulna and Llandrindod.

For marked anaemia arising from prolonged organic disease of the liver, the chalybeate waters of Tunbridge Wells, Moffat, Spa, Pyrmont, and Schwalbach.

GLOSSARIAL INDEX.

A

- Abdomen (from *abdo*, *abdere*, to hide), the belly.
- Abscess (from *abscedo*, to escape), a cavity containing pus matter.
- Albuminuria (from *albumen*, and *οἴρεω*, to void urine, an albuminous condition of the urine).
- Allopathy (from *ἄλλος*, another, and *πάθος*, affection or suffering), the removal of a diseased action by inducing an opposite action, the so-called orthodox system of the present day.
- Anæmia (from *a*, gr. priv., and *αιμα*, blood), exsanguinity, or a state of bloodlessness.
- Antiseptic (from *αντι*, against, and *σήπω*, to putrefy), to prevent and destroy putrefaction.
- Abnormal (ab, from, and *norma*, a rule), irregular ; that which deviates from the usual order ; disease of any organ of the body constitutes an abnormal condition of that structure.
- Ascites (from *ἀσκός*, a sack), dropsy of the belly.
- Atrophy (a, gr. priv, and *τροφή*, nourishment), wasting of the body, emaciation.
- Anatomy (*ἀνατέμνω*, to cut up), the science whose object is the examination of the organs or machinery of life.
- Amyloid.
- Auscultation (from *ausculto*, to listen).
- Analogous (from *άντα*, according to, and *γογος*, a word corresponding with another ; analogous expressions).
- Apoplexia (from *ἀποκλήσχω*), to strike down.

C

- Cardialgia, heartburn, or spasm of the stomach.
- Cachetic (from *κακός*, bad, and *ἴξις*, a habit), a depraved state of the body.
- Chyle, a milk-like fluid, absorbed by the lacteal vessels of the intestines, which is carried into the circulation.
- Chylo-poietic, a term applied to the viscera and vessels connected with the formation of bile.
- Cirrhosis, a granular and diminished size of the liver, the result of spirit-drinking.
- Constipation, a torpid and inactive state of the bowels.

- Clinical (*κλινή*), a bed to recline ; in a general sense pertaining to a bed ; short practical lectures at the bedside of a patient.
- Convalescence (from *convalesco*), to grow strong or well.
- Coryza (from *καρα*, the head, and *ζέω*), to void. A limpid,ropy, mucous defluxion from the nostrils.
- Catarrh (from *κατά*, down, *ρέω*, to flow), a cold and inordinate discharge from a mucous membrane, as the nose, bronchi, &c.
- Comatose (*κῶμα*, a deep sleep), a drowsy, sleepy condition.
- Chlorosis (from *χλωρός*, green), green-sickness, peculiar to young ladies, from prolonged suppression of the natural periods.
- Conjunctiva, the mucous membrane which covers the eyeball and lines the eyelids (from *con*, together, and *jungo*, to join), the white of the eye.
- Coma (from *κῶμα*, drowsiness), lethargic sleep.
- Carcinoma, hard cancer.

D

- Deglutition (deglutio, to swallow), the act of swallowing or bolting food.
- Diabetes (from *διά*, through, *βαίνω*, to pass or flow), a term given to a disease whose chief characteristic is an inordinate passage of sugary urine.
- Dropsy (from hydrops, water), an effusion of water into the cellular tissue under the skin, or, into some of the cavities of the body.
- Digestion (from *digero*, to change), in Physiology, the change of the food into chyme by the secretions from the mouth and stomach.
- Dyspncea (from *δύνει*, difficult, and *πνέω*, to breathe), difficulty in breathing, as from asthma.
- Diagnosis (from *γενώσκω*, to discern), the distinction of diseases, the faculty of reading diseases.
- Ductus communis choledochus, the common bile-duct leading from the gall-bladder to the intestines.
- Dysentery, inflammation and ulceration of the mucous membrane of the colon, with loose bloody stools, peculiar to warm climates.
- Dyspepsia, bad digestion.

E

- Etiology (from *αἴτια*, cause, and *λογος*, a discourse), an account of the causes of disease.
- Empirical, versed in experiments.
- Encephaloid cancer, cerebriform, or brain-like.
- Epidemic, prevalent (from *ἐπί*, among, and *δῆμος*, a people).
- Enteralgia, nervous pain in the bowels, "tic."

F

- Fungus haematores, bleeding cancer.

G

Gastralgia, pain or spasms of the stomach.

H

Hygiene (from *ὑγιαῖνω*, to be well), health, the preservation of health.
Hepatic (from *hepar*, the liver), a term applied to any part belonging to the liver.

History, matter of record.

Homeopathy (from *ὅμοιος*, like, and *παθος*, disease), like cured by like.

Hypertrophy (from *ὑπερ*, over, *τροφή*, nourishment), an excess of nutrition, as applied to organs or tissues.

Hysteralgia, pain situated in the womb.

Hepatalgia, pain situated in the liver (from *ἡπατός*, the liver, and *αλγος*, pain).

Hypochondriasis, lowness of spirits.

I

Icterus (from *ἰκτέρος*, the golden thrush), jaundice, a yellow condition of the skin from the presence of bile in the blood.

Idiopathic (*ἴδιος*, peculiar, and *πάθος*, affection), primary disease, opposed to sympathetic, or symptomatic.

Icterus catarrhales.

Icterus neonatorum, infant jaundice.

L

Leucine, a peculiar substance found in the urine of those suffering from cirrhosis.

Lardaceous, like the grease of swine.

M

Mastodynia, pains in the breast.

Malaria, literally bad air.

Medullary cancer, brain-like cancer.

Melanotic cancer, black cancer.

Metastasis (from *μεθιστῆμι*, to transpose), the transportation of a disease from one part of the body to another.

N

Nosology (from *νόσος*, disease, and *λόγος*, a discourse), a description and arrangement of diseases according to their classes, orders, or genera.

Neuralgia (from *νεῦρον*, a nerve, and *ἀλγεῖ*, pain), nerve-ache, or pain in a nerve.

Normal, healthy condition.

Nephralgia, pain of the kidneys.

O

Œdema (from *οἰδέω*, to swell), a swelling from the effusion of the serous fluid of the blood into the tissue beneath the skin.

P

Pannus hepaticus, liver spots, a jaundiced tint of skin, in spots or patches.

Pathognomonic, a term applied to symptoms which are characteristic of and peculiar to a disease.

Prophylactic (from *πρό*, beforehand, and *φυλάσσω*, to guard, caution), preservation of health or prevention of disease.

Pyæmia, blood-poisoning with pus.

Physiology, the science of the different functions of which life is the manifestation, or the doctrine of vital phenomena.

Pathology, that part of medicine which explains the nature of diseases, their causes and symptoms.

Peri-hepatitis, inflammation of the covering of the liver.

Paroxysm (from *παροξύνω*, to aggravate), an evident increase of symptoms.

Phlebitis (from *φλέψ*, a vein), inflammation of a vein.

Potency, the strength of a medicine.

Pathology, the science of investigating the nature of diseases.

Portal system, a subordinate course of venous circulation, of which the liver is the head-quarters.

Pilules, small pills, composed of starch and sugar of milk, used as vehicles for the administration of homœopathic medicines.

S

Splenalgia, pain in the spleen.

Symptomatology, the doctrine of symptoms.

Synonymously.

Syphilis, a foul, malignant, and contagious disease.

Similia similibus curantur, like by likes are cured.

T

Therapeutics, that part of medicine which relates to the composition, the application, and the modes of operation of the remedies for disease.

Typhus, a malignant fever.

Typhus icterodes, the yellow fever of the West Indies.

Type, to prefigure, to represent by a model.

Tyrosine, a peculiar principle found in cirrhotic urine.

Tic-douloureux, painful affection of the nerves of the face, without any particular inflammatory action.

Triturations, medicinal preparations made by the process of rubbing or pounding.

U

Uræmia, blood-poisoning with urea.

V

Vis medicatrix naturæ, the healing or preserving power of nature.

W

Waxy liver, appertaining to wax.

X

Xantippe, the wife of Socrates, a brawling, turbulent woman.

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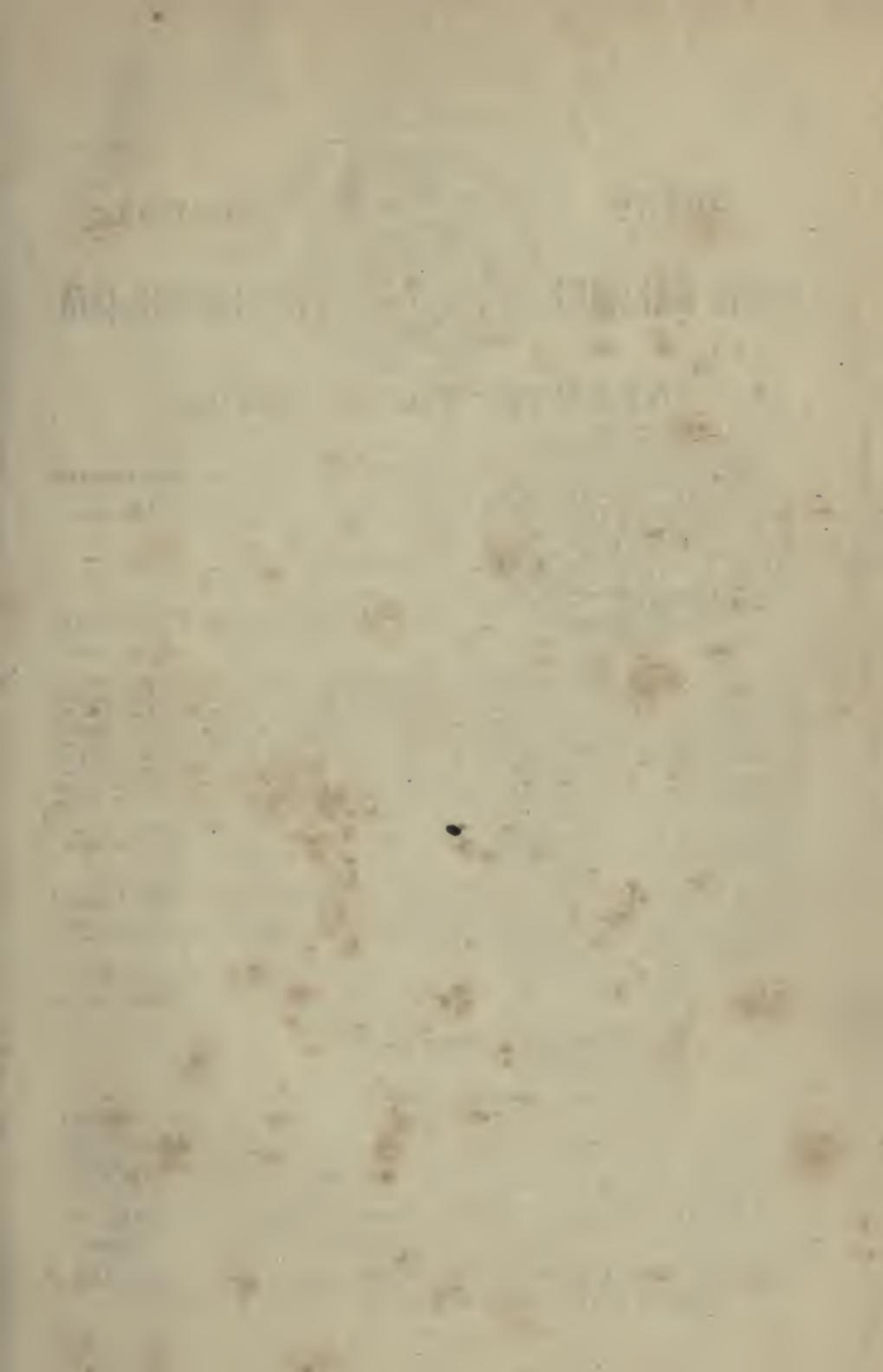
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Mineral salts containing phosphates	1·2

The flesh and bone-forming constituents are far above the average of the best Farinaceous Foods, and the dryness shows the most careful preparation of the highest class of flours. Such a result must cause your 'Food' to be valued as sound substantive nutriment, upon which the greatest dependence may be placed. During and after dentition the quantity administered may be gradually increased in infants' food, and invalids may rely upon it whenever a diet of this class is required.—(Signed) H. C. BARTLETT, Ph.D., F.C.S."

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